ORDER NO. MD9706044C1
A6

Service Manual

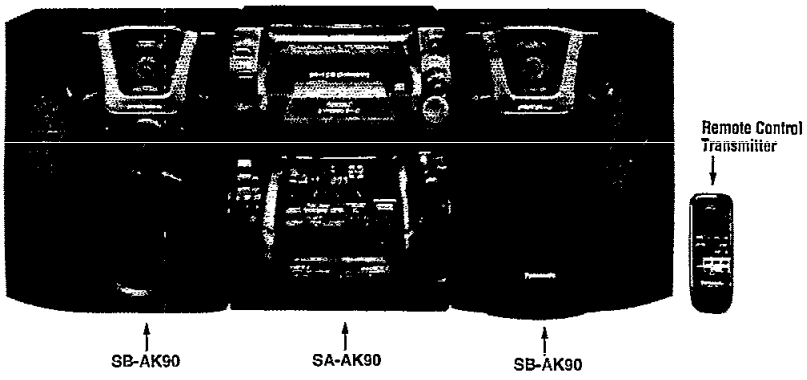
COMPACT disc DIGITAL AUDIO

MASH multi-stage noise shaping

※ • MASH is a trademark of NTT.

CD Stereo System

SA-AK90



Colour (K) .... Black Type

Areas

P ..... U.S.A.

PC ..... Canada.

System	Main unit	Speakers
SC-AK90	SA-AK90	SB-AK90

Tape Deck: Mechanism AR2 Series
Traverse Deck: RAE0150Z Mechanism Series

Specifications

Amplifier section	
Rated minimum sine wave	
RMS power output	
0.9% total harmonic distortion	
50Hz-120Hz both channels driven	75W per channel (6Ω)
120Hz-20KHz both channel driven	25W per channel (6Ω)
Total BI-AMP power	100W per channel
Input sensitivity	
AUX	250mV
Input impedance	
AUX	15kΩ
FM tuner section	
Frequency range	87.9-107.9MHz (200kHz steps) 87.5-108.0MHz (100kHz steps)
Sensitivity	23.3dBf(4.0mV, IHF'58)
Antenna terminal(s)	75Ω (unbalanced)
AM tuner section	
Frequency range	520-1710kHz
Sensitivity	
S/N 20dB	500μV/m
Cassette deck section	
Track system	4 track, 2 channel
Heads	
Record/playback	Solid permalloy head
Erasure	Double gap ferrite head
Motor	DC servo motor
Recording system	AC bias 100kHz
Erasing system	AC erase
Tape speed	4.8cm/s(1⅞ ips)
Frequency response (-3, +6 dB) at DECK OUT	
NORMAL	35Hz-14kHz
HIGH	35Hz-14kHz
S/N	50dB(A weighted)
Wow and flutter	0.18%(WRMS)
Fast forward and rewind times	Approx. 120 seconds with C-60 cassette tape
CD section	
Sampling frequency	44.1kHz
Decoding	16 bit linear
Beam source/wave/length	Semiconductor laser/780nm
Number of channels	Stereo
S/N	
SP out	87dB(JIS.A)
Wow and flutter	Below measurable limit
Digital flitter	8fs
D/A converter	MASH(1bit DAC)
General	
Power supply	AC120V, 60Hz
Power consumption	155W
Dimentions(WxHxD)	270(Wide)/345(High)/394(Depth)mm 10⅝"(Wide)X13 19/32"(High)X15½"(Depth) inch
Weight	10.3kG

Notes:

1. Specifications are subject to change without notice.
   Weight and dimentions are approximate.
2. Total harmonic distortion is measures by the digital spectrum analyzer.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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■ Precaution of Laser Diode

CAUTION: This unit utilizes a class 1 laser. Invisible laser radiation is emitted from the optical pickup lens when the unit is turned on :

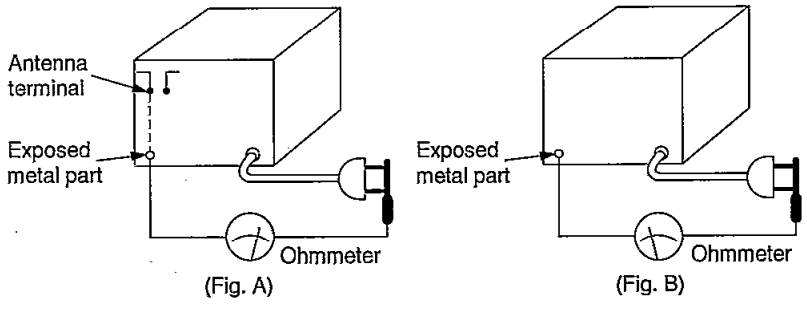
1. Do not look directly into the pickup lens.
2. Do not use optical instruments to look at the pickup lens.
3. Do not adjust the preset variable resistor on the optical pickup.
4. Do not disassemble the optical pickup unit.
5. If the optical pickup is replaced, use the manufactures specified replacement pickup only.
6. Use of control or adjustments or performance of procedures other than those specified herin may result in hazardous radiation exposure.

■ Safety Precaution (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacture's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jump
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2 MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)



(Fig. A) Resistance=3MΩ–5.2MΩ

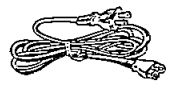
(Fig. B) Resistance=Approx. ∞

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.

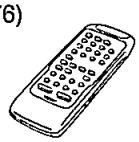
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ Accessories

- AC power supply cord 1pc. (SJA172)

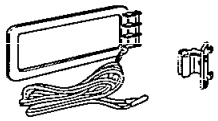


- Remote control transmitter 1pc. (EUR644376)

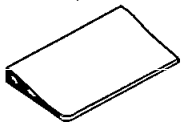


- FM indoor antenna 1pc. (RSA0006-J)

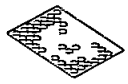
- AM loop antenna set (RSA0022)
  AM loop antenna ..... 1pc.
  AM antenna holder ..... 1pc.



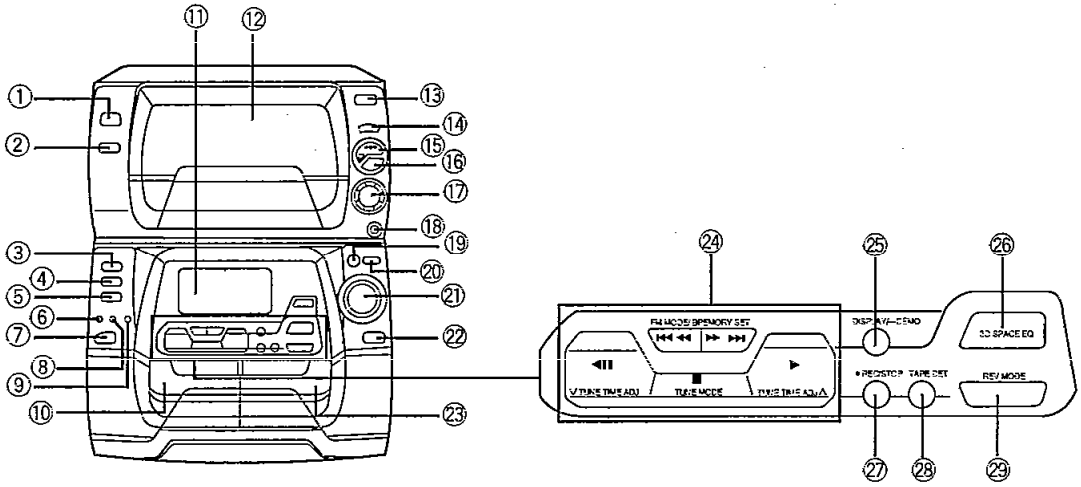
- File book ..... 1pc. [Liner notes organizer] (RFA0860-K)



- Number sheet 1pc. (RQLA0321)



■ Location of Controls



No.	Name
①	Power "STANDBY⏻/ON" switch (POWER, STANDBY⏻/ON)
②	Single play button (SINGLE ▶)
③	CD button (CD)
④	Tuner/band select button (TUNER, BAND)
⑤	Tape/deck select button (TAPE DECK 1/2)
⑥	AUX button (AUX)
⑦	Deck 1 open button (DECK 1, ▲ OPEN)
⑧	Clock/timer button (CLOCK/TIMER)
⑨	Record timer/play timer button (◴ REC/◴ PLAY)
⑩	Deck 1 cassette holder
⑪	Display
⑫	CD rack panel
⑬	CD rack panel open button (OPEN)
⑭	CD MANAGER button (CD MANAGER)
⑮	Disc/track select button and indicator (DISK/TRACK)

No.	Name
⑯	Play button (CD ▶)
⑰	Jog dial (JOG)
⑱	Headphone jack (PHONES)
⑲	Super woofer ON/OFF button (SUPER WOOFER)
⑳	Super woofer level select button (LEVEL)
㉑	Volume control (VOLUME)
㉒	Deck 2 open button (DECK2, ▲ OPEN)
㉓	Deck 2 cassette holder
㉔	Basic operating buttons Buttons change according to the source.
㉕	Display select/demonstration button (-DISPLAY/-DEMO)
㉖	3D space EQ button (3D SPACE EQ)
㉗	Recording start/stop button (● REC/STOP)
㉘	Tape edit button (TAPE EDIT)
㉙	Reverse mode select button (REV MODE)

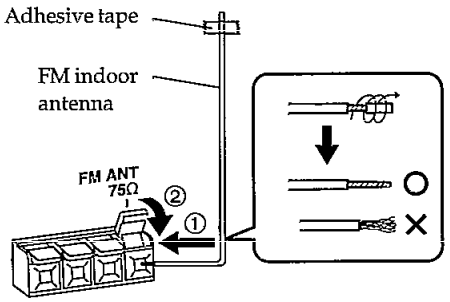
■ Connections

● Basic connections for supplied accessories

Before making connections:
- Make sure you correctly identify the left/right sides before placing the speakers.
- Plug the AC power supply cord into a household AC outlet only after all other connections have been made.

1 FM indoor antenna

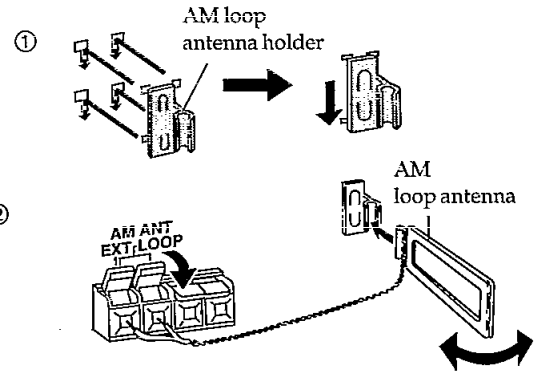
Tape the antenna to a wall or column, in a position where radio signals are received with the least amount of interference.

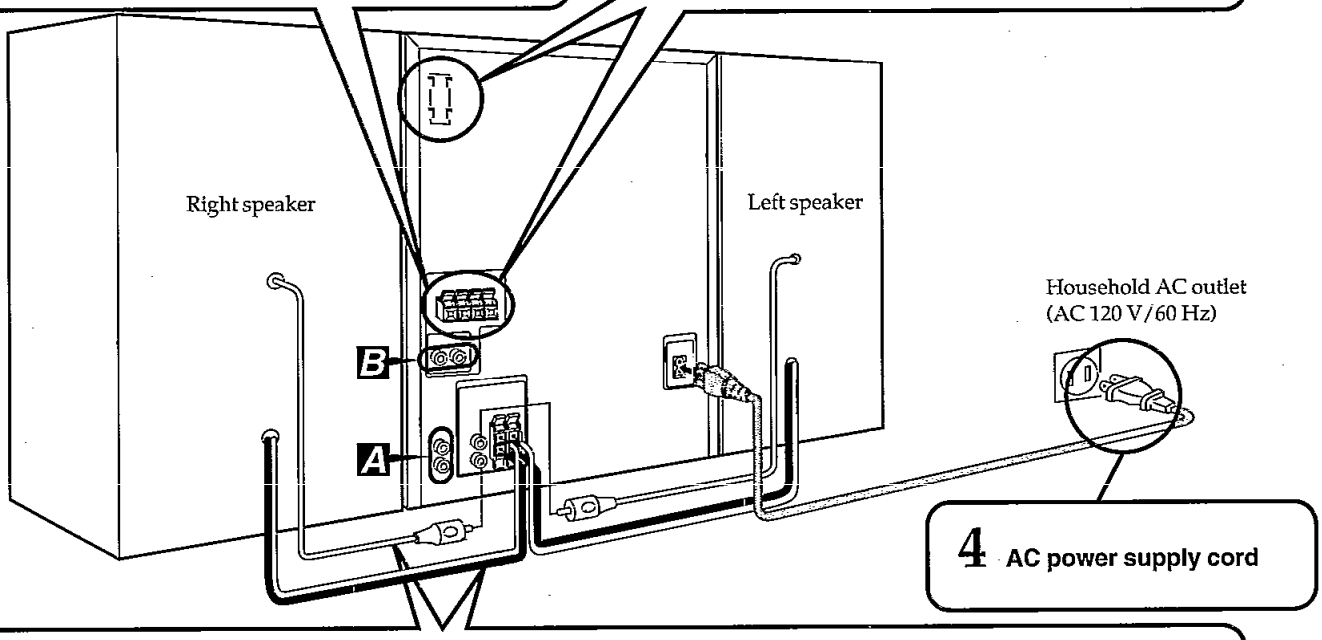


For best reception sound quality:
An FM outdoor antenna is recommended. (See page 7.)

2 AM loop antenna

After attaching the antenna, turn on the system and tune in a broadcast station. Then, turn the antenna to the angle of best reception and least interference.

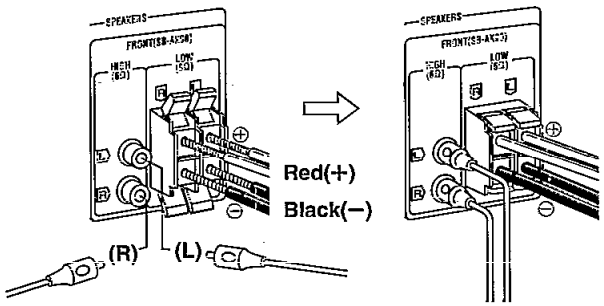




4 AC power supply cord

3 Speaker cords

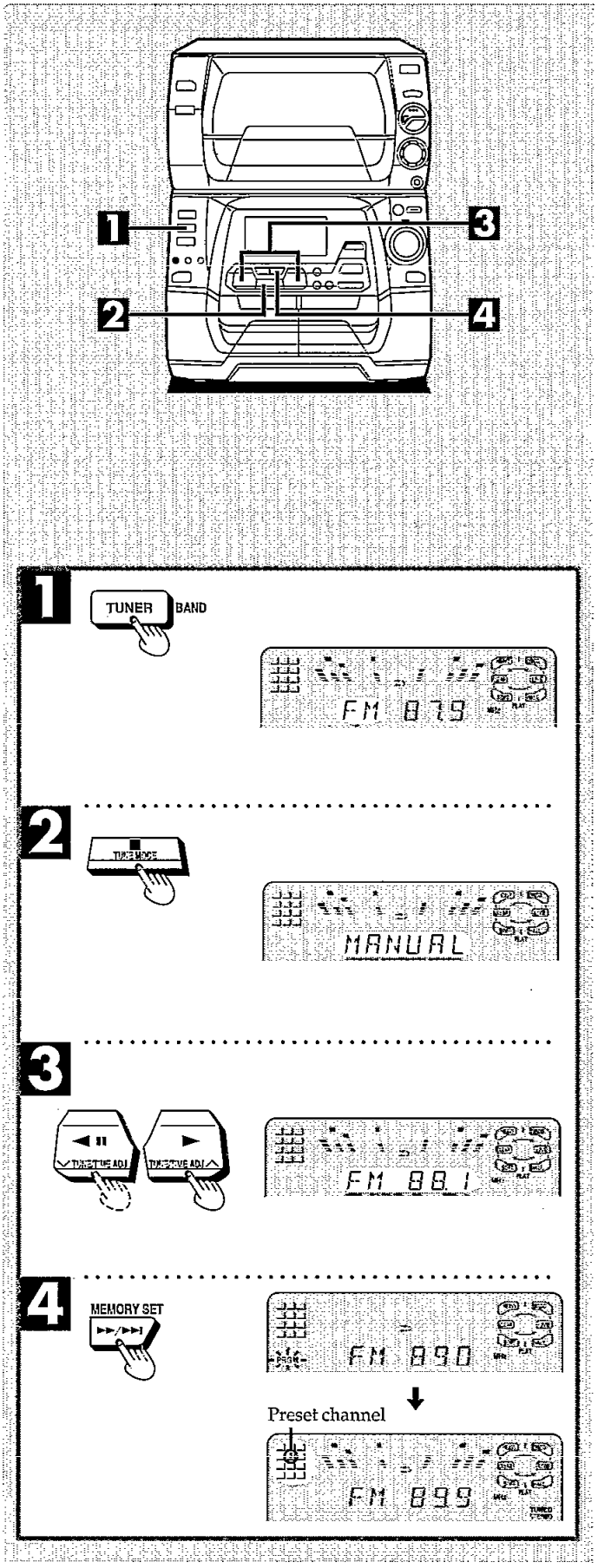
Match the cords to the terminals by color and connect.



Note
To prevent damage to circuitry, never short-circuit positive (+) and negative (−) speaker wires.

■ Listening to the Radio

● Presetting radio broadcasts



- Up to 12 stations can each be set in the FM and AM bands automatically.
- If broadcast frequencies are preset in the memory, you can easily tune in any of these frequencies from the system or remote control unit.
- You can also preset just those stations you like.
  (See "Presetting only your favorite stations" below.)

1 Press TUNER BAND to select "FM" or "AM".
The power will come on automatically.
Every time you press the button; "FM" ⟷ "AM".

2 Press TUNE MODE to select "MANUAL".
Every time you press the button; "MANUAL" ⟷ "PRESET".

3 Press ∨ or ∧ until the display shows the frequency from which you want to begin automatic memory presetting.

Tips on tuning in radio stations

① Hold down either ∨ or ∧ until the frequency numbers start scrolling.
② When nearing the desired frequency, press the button to stop the scrolling and then fine tune the broadcast.

4 Press and hold down MEMORY/SET until the frequency begins to change.
This will start presetting automatically. When finished, the radio will tune in last station memorized.

If auto presetting is not possible because radio signals are weak or for some other reason, do the following.

Presetting only your favorite stations

Preset the stations one at a time.

1. Perform above steps 1 and 2. Then, select a station with ∨ and ∧, and press MEMORY/SET. "PRGM" will flash on the display.
2. While "PRGM" is flashing, select a preset channel with ∨ or ∧, and press MEMORY/SET again. "PRGM" will go out and the station will be stored in memory.

FM allocation setting

The FM frequency step is set to 0.2 MHz at the time of shipment. By adjusting the allocation as shown below, you can enable the system to receive FM broadcasts allocated in 0.1 MHz steps.

1. Press and hold TUNER BAND for approximately 5 seconds.
   The frequency display will be returned to the minimum frequency of the FM band and the display will begin to flash.
   Keep holding for approximately 5 more seconds.
2. When the display stops flashing and indicates a different frequency number (the frequency step is changed to 0.1 MHz.), release TUNER BAND.

To return to the original frequency, repeat steps 1 to 2 above.

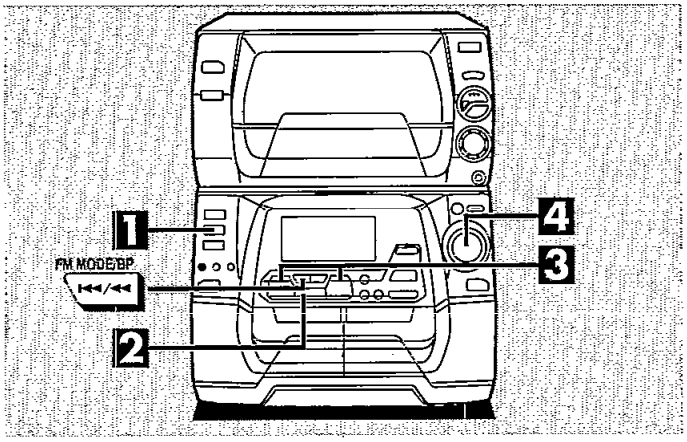
Note

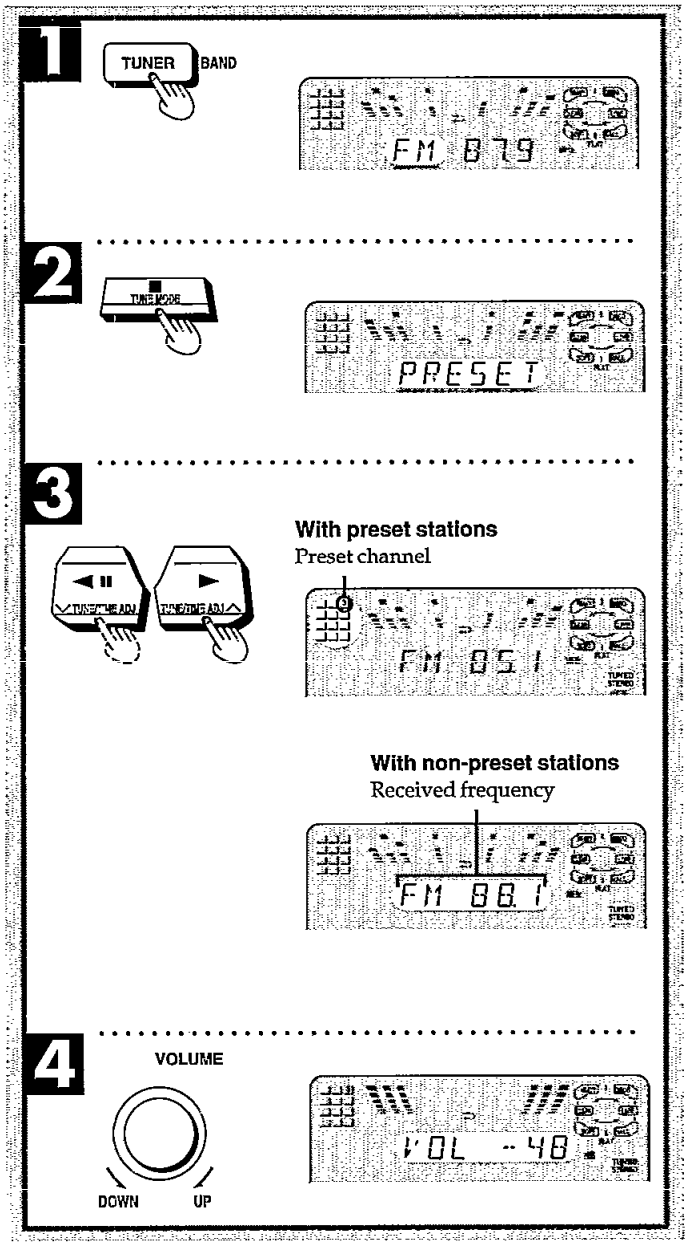
After changing the "allocation" setting, the frequencies you previously preset in the memory will be cleared.

Memory retention

Your preset frequencies are retained in memory for about 2 weeks while the system is unplugged.

● Listening to radio broadcasts





1 Press TUNER BAND to select "FM" or "AM".
The power will come on automatically.
Every time you press the button; "FM" ⟷ "AM".

2 Press TUNE MODE to select "PRESET" or "MANUAL".
Every time you press the button; "MANUAL" ⟷ "PRESET".

PRESET: For preset stations
MANUAL: For non-preset stations

3 Press ∨ or ∧ to select the desired broadcast.
"STEREO" lights when an FM stereo broadcast is being received. "TUNED" lights when you precisely tune in a broadcast station.

4 Adjust the volume level.

For tuning by remote control
Specify the channel you want with the numeric keys (see page 36).

To designate channels 1–9
Press the appropriate (1–9) preset-tuning button.
To designate channels 10–12
(Example: Channel 12)
≥10 ⟶ 1 ⟶ 2
(within 10 sec.) (within 10 sec.)

Auto tuning

Auto tuning is an easy way to tune in non-preset stations (select "MANUAL" in step 2).

Hold down either ∨ or ∧, and release the button when the frequency starts scrolling.
The radio frequency will stop automatically on the first station it picks up.
- When there is outside interference, the radio may stop on a non-broadcast frequency. Hold down either ∨ or ∧ to resume auto tuning.

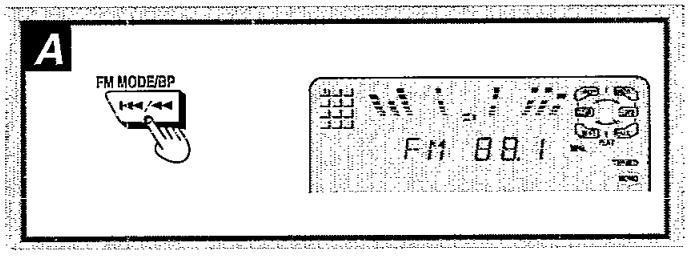
To stop auto tuning
Press either ∨ or ∧ again.

If noise is excessive in the FM stereo mode A

Press FM MODE/BP. ("MONO" will light up.)
Sound will be produced in monaural, but this also reduces noise. Press the button again to cancel. "MONO" will go out.

Normally, you'll want to listen in stereo, so leave "MONO" off. This way, you can listen to stereo broadcasts in stereo, and monaural broadcasts in mono.

Note
Sound is momentarily interrupted if you load/unload tapes while listening to an AM broadcast.



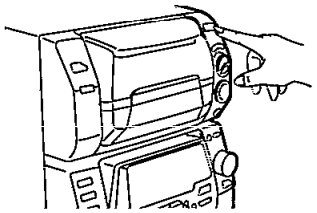
■ Listening to CDs

● Setting/ Removing CDs

You can set CDs in the rack and remove them too, while playing CDs.

How to set CDs

1. Open the rack panel.



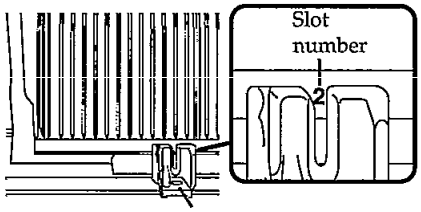
Note

Except when setting or removing CDs, keep hands out of the changer while open. You could injure yourself if somehow entangled in the internal mechanism.

2. Slide the loader carriage to the slot you want.

Note

The loader carriage has a LOCK position (when the lever is down) and a RELEASE position (when the lever is up). When you slide the loader carriage to select the slot you want, make sure it is in the RELEASE position (when the lever is up).
You can read the numbers between the prongs as shown below.

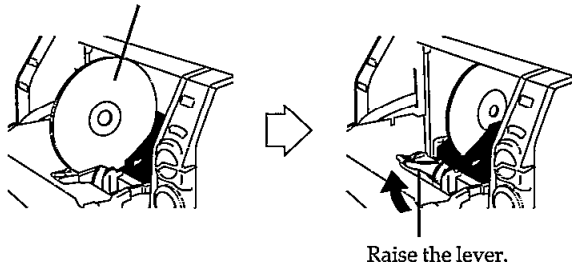


Loader carriage

Slot No. 0 (SINGLE) is reserved for single CD play .

3. ① Lower the lever on the loader carriage and set the CD in the groove with the label facing to the right.
② Raise the lever.

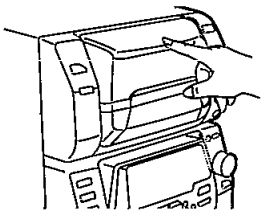
Label side



Raise the lever.

4. Close the rack panel gently.

You will hear a catching sound when the rack panel closes.



Press on center piece.

How to remove CDs

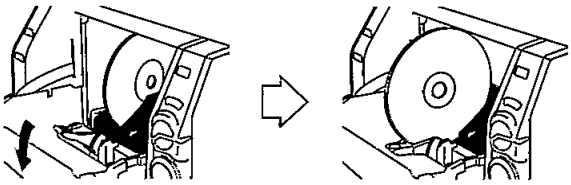
1. Open the rack panel.

2. Slide the loader carriage to the slot you want.

Note

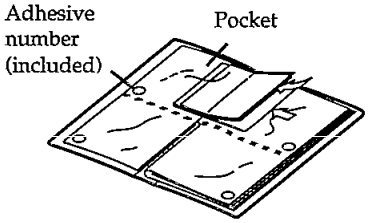
Do not slide the loader carriage when the lever is down.

3. Lower the end of the lever and then remove CDs.



How to know what CD is in what slot

This system comes with a notebook-like binder (liner notes organizer) in which you can keep your CD liners. There are also adhesive numbers for indicating slot numbers in the binder. This is a convenient way to keep track of what CD is in what slot.



Put two liners back-to-back inside each pocket, as shown above.

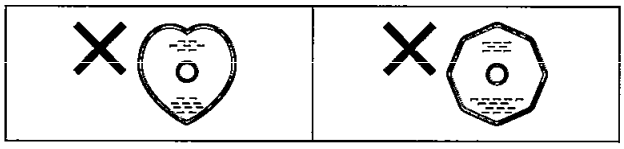
Note

Do not put CD cases in the binder.

To prevent damage

Always observe the following points.

- Never load more than one CD in any given slot.
- Do not use 3" (8 cm) CDs fitted with expander rings.
- Do not put anything other than CDs in the changer.
- Do not set a CD in the slot of the CD being played (slot flashes).
- Sometimes the rack panel cannot be opened while a CD is playing. It is a question of time. In such case, wait until you can open it.
- Do not open tha rack panel while the changer is changing CDs.
- Do not use cleaning CDs or CDs which are badly warped or cracked.
- Set the system on a flat, level surface. Do not set it on top of magazines, inclined surfaces, etc.
- Always unload all CDs before moving the system.
- Do not use CDs with poorly attached labels or stickers. Adhesive protruding from underneath stickers or left over from peeled off stickers can cause the system to malfunction.
- Do not use irregular shape CDs (heart-shape, octagonal, etc.).



● Normal Play

1 Press CD.
The power will come on automatically.

2 Set CDs in the rack.
(For details, see page 7.)
While the changer checks which slots have CDs and which don't, you will hear the internal mechanism working. In the meantime, "SEARCH" will flash on the display.

3 Press DISC/TRACK to select the CD selection mode.
(The indicator illuminates with a green color.)

4 Turn JOG to select the desired CD number.

5 While the CD number is flashing (approx. 10 seconds)
Press CD ▶. (Play will begin.)
The changer will play all CDs up through the one before the CD you started with, and it will stop automatically after playing the last track on it.

6 Adjust the volume level.

To stop the CD play A
Press ■.

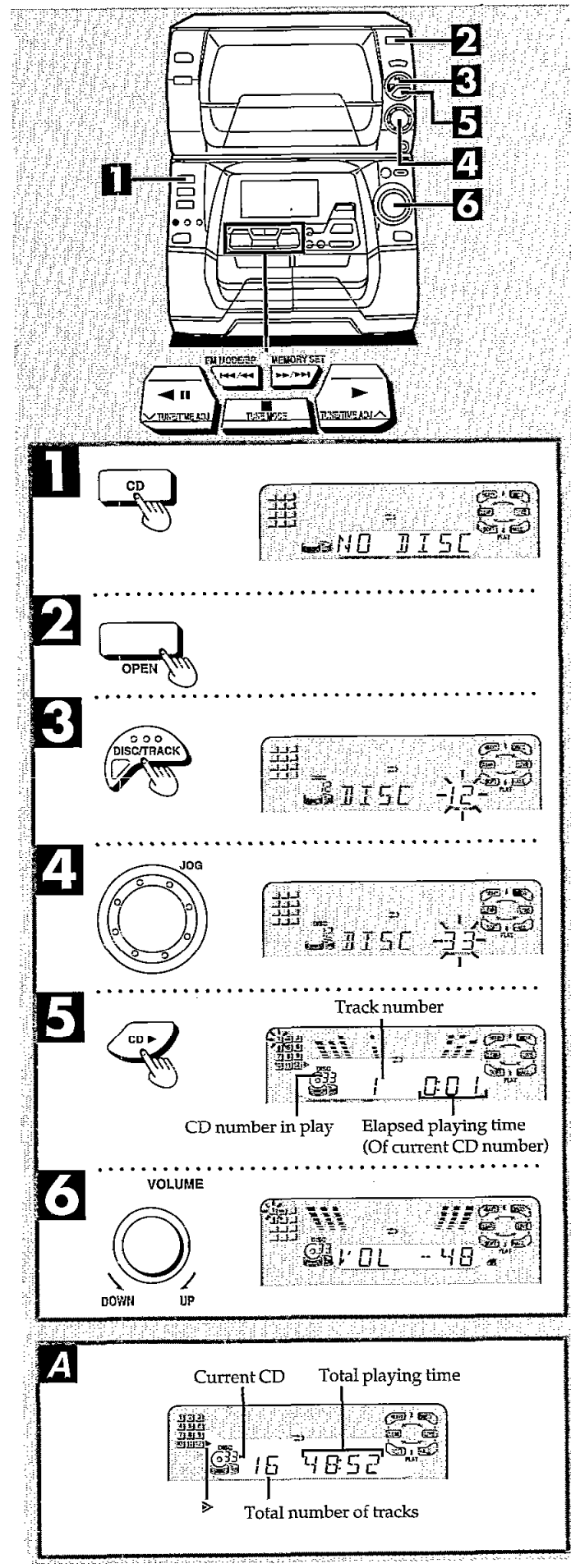
When " ⩥ " appears on the display
It indicates there are 13 or more tracks on the CD at the playing position.

To pause	Press ❚❚ during playback. To resume playback, press ▶.
To search forward/ backward (Search)	Hold down ⏮/◀◀ (backward) or ▶▶/⏭ (forward) during playback.
To skip forward/ backward	Press ⏮/◀◀ (backward) or ▶▶/⏭ (forward) during playback.

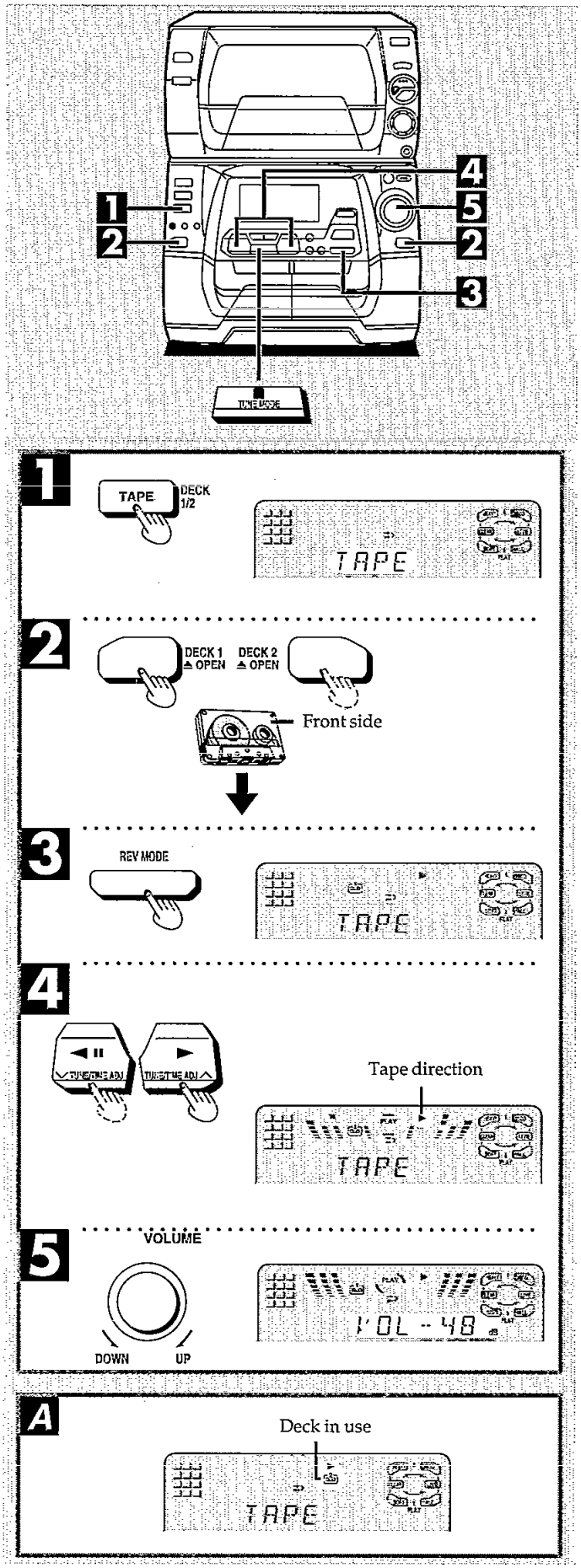
Note
- If you leave the front panel open while a CD is in play, when the CD is over, the changer will stop.
- During random play, you cannot skip to tracks which have already been played.
- During program play or random play, you cannot search forward or backward over tracks.
- During program play, skipping is always in the programmed order, whether forward or backward.

One-touch play
When the system is OFF, playing starts automatically when you press CD.

For your reference
In step 5, you can also begin playback by pressing the basic operating button ▶.



■ Listening to Tapes



Type of tape which can be played correctly

The system automatically identifies the type of tape.

NORMAL POSITION/TYPE I	○
HIGH POSITION/TYPE II	○
METAL POSITION/TYPE IV	○

You can use either deck 1 or deck 2 for tape playback.

1 Press TAPE DECK 1/2.

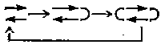
The power will come on automatically.

2 Press DECK 1 ▲ OPEN or DECK 2 ▲ OPEN, and then insert the tape.

Insert the tape with the exposed tape facing down.
Close the holder by hand.

3 Press REV MODE to select the reverse mode.

Every time you press the button;



: One side is played, then playback stops automatically.
: Both sides (front side→reverse side) are played one time each, then playback stops automatically.
: Both sides are played 8 times each, then playback stops automatically.

4 Press ◄ or ► to start playback.

►: The forward side (front side) will play.
◄: The reverse side will play.

5 Adjust the volume level.

To stop tape playback

Press ■.

To change the deck to be used A

Press TAPE DECK 1/2 to select the deck you want to use when you load cassettes into both decks.

To listen to 2 tapes consecutively

Load a tape into each deck and select . Both tapes will be played 8 times each.

Note

Playback is momentarily interrupted while playing back tapes, if you open the other deck.

One-touch play

When the system is OFF, playing starts automatically when you press TAPE DECK 1/2.

To fast-forward or rewind the tape

Press ⏮/◄◄ or ►►/⏭ in the stop mode.

To find the beginning of a program (TPS: Tape Program Sensor)

Press ⏮/◄◄ or ►►/⏭ during play.

Note

The TPS function searches for silent parts of about 4 seconds in length which are normally found between tunes. As a result, it may not function properly in the following cases.

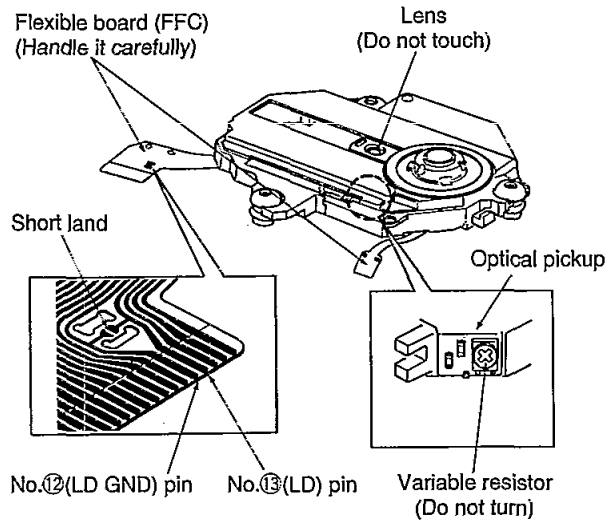
- With short silent parts
- When noise occurs between tunes
- With silent parts found within tunes

■ Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

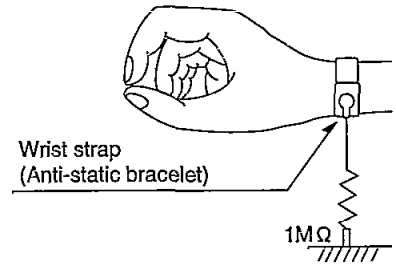
• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. The short land between the No.⑫ (LD GND) and No. ⑬ (LD) pins on the flexible board (FFC) is shorted with a solder build-up to prevent damage to the laser diode.
   To connect to the PC board, be sure to open by removing the solder build-up, and finish the work quickly.
3. Take care not to apply excessive stress to the flexible board (FFC).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

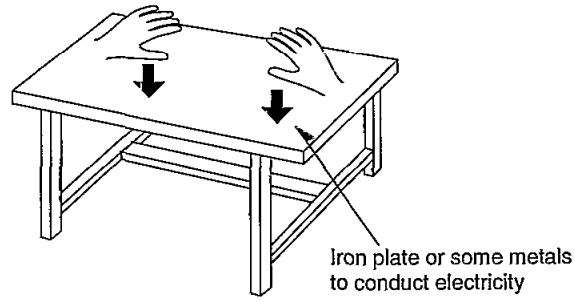


• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.



Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



■ Operation Checks and Main Component Replacement Procedures

NOTE

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

3. Select items from the following index when checks or replacement are required.

• Contents

Page.

• **Common (Items for each procedure)** ..... 11.

• **Checking for each P.C.B. and confirmation of cassette mechanism / loading unit operation**

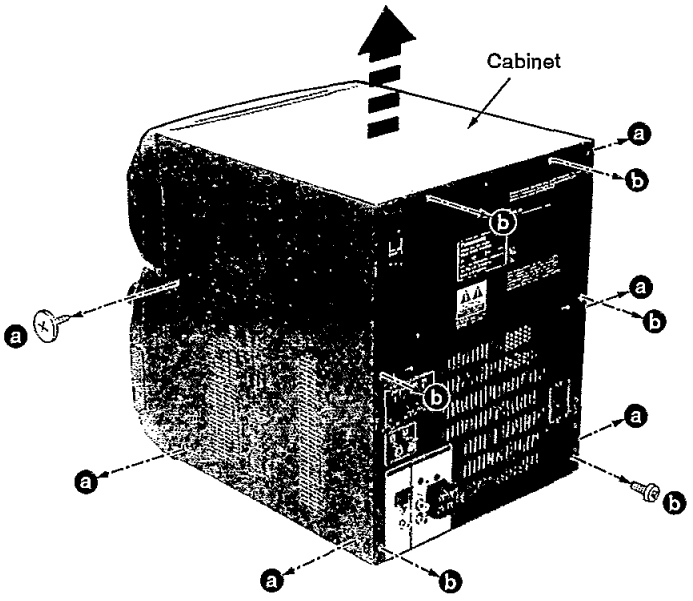
1. Checking for the main P.C.B. ..... 12.
2. Checking for the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. ..... 12~14.
3. Checking for the mechanism control P.C.B. and confirmation of cassette mechanism operation. ..... 14~16.
4. Checking for the tuner P.C.B., BI–AMP P.C.B. and power AMP P.C.B. ..... 16~18.
5. Confirmation of loading unit operation. ..... 18~22.
6. Confirmation of focus operation and checking for the CD servo P.C.B. ..... 23~25.
7. Confirmation of focus operation at sole traverse deck and checking for the CD servo P.C.B. ..... 26~28.

• **Main Component Replacement Procedures**

1. Replacement for the cassette lid ass'y. ..... 29.
2. Replacement for the CD panel window and CD lid ornament ..... 29~31.

• **Measure for tape trouble** ..... 31.

■ COMMON ••••• (ITEMS FOR EACH PROCEDURE)



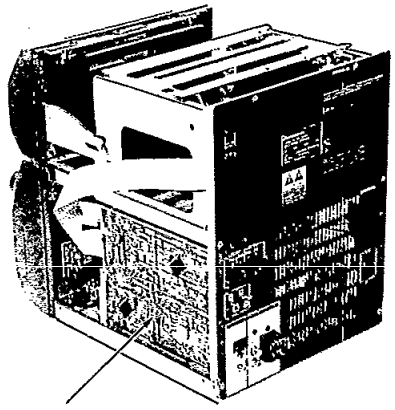
Step 1 Remove the 12 screws. (ⓐ, ⓑ)

↓

Step 2 Remove the cabinet.

■ Checking for each P.C.B. and confirmation of cassette mechanism / loading unit operation

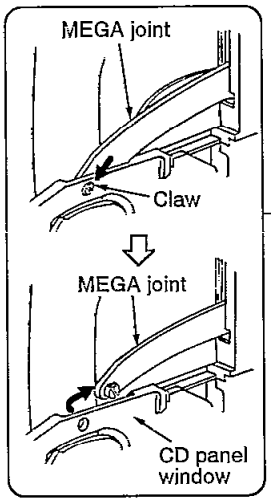
1. Checking for the main P.C.B.

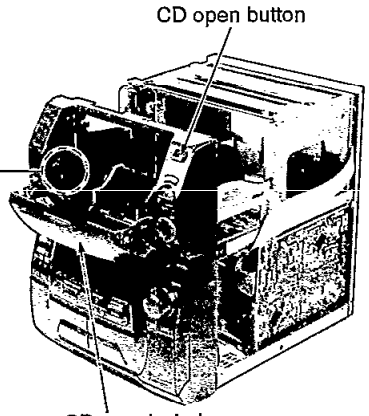


Check the main P.C.B. as shown left.

※ The main P.C.B. can be checked only cabinet removal.

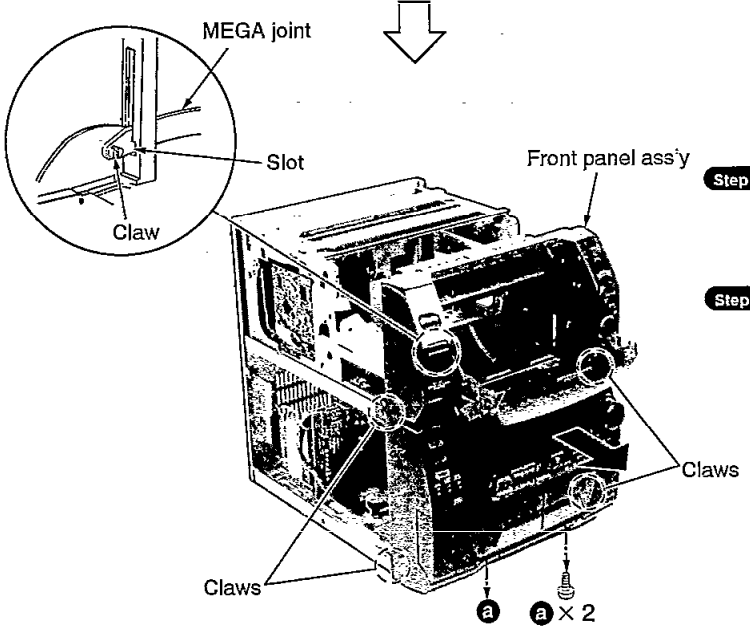
2. Checking for the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B.





Step 1 Pressing the CD open button, open the CD panel window.

Step 2 Release the claw, and then remove the MEGA joint.

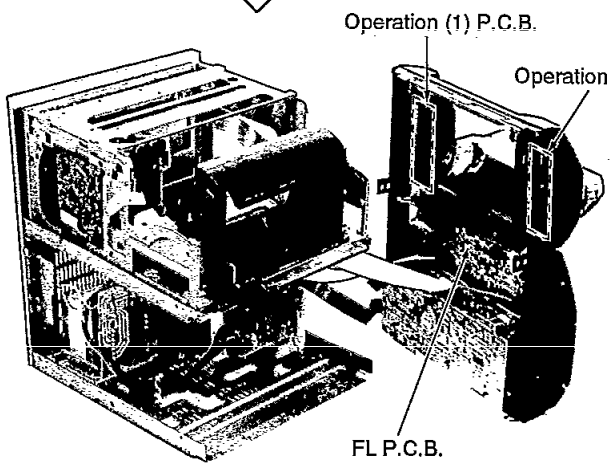


Step 3 Remove the 2 screws. (ⓐ)

Step 4 Release the 4 claws, and then remove the front panel ass'y.

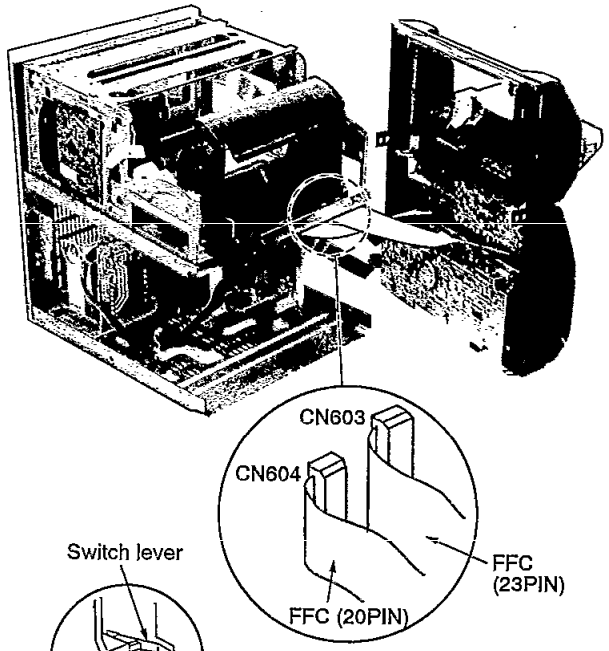
NOTE

Align the claw of MEGA joint with the slot, and then remove the front panel ass'y.

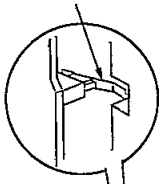


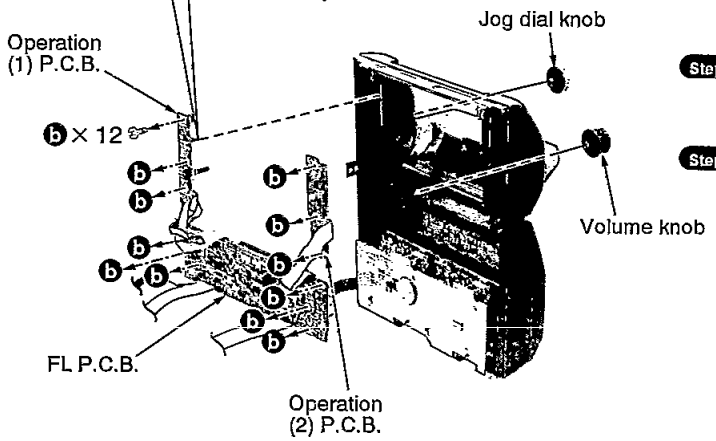
Check for the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. as shown left.

Removal of the FL P.C.B., operation (1) P.C.B., operation (2) P.C.B. and operation (3) P.C.B. for replacing parts.



Step 5 Remove the FFCs from the connectors.





Step 6 Remove the 12 screws. (ⓑ)

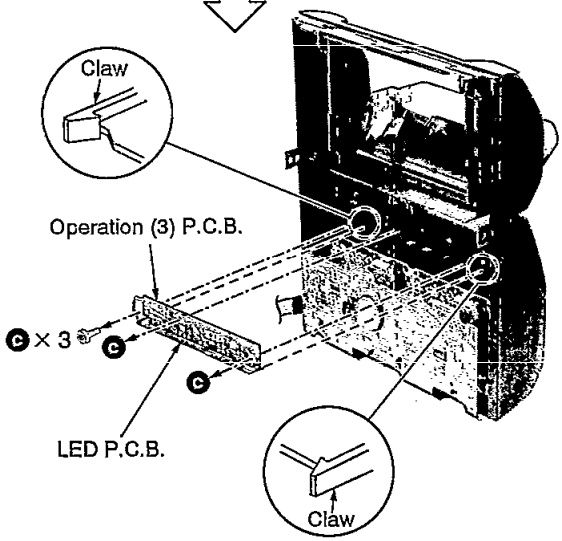
Step 7 Remove the jog dial knob and volume knob.

Step 8 Remove the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B..

Caution

Be care not to damage the switch lever when removing the operation (1) P.C.B..

The parts on the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. can be replaced.



Step 9 Remove the 3 screws. (ⓒ)

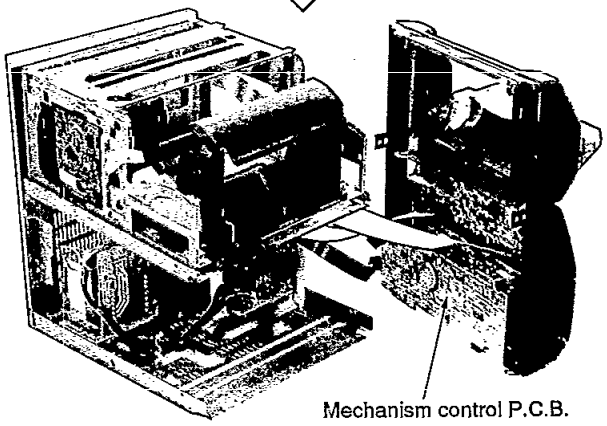
Step 10 Release the 2 claws.

Step 11 Remove the LED P.C.B. and operation (3) P.C.B..

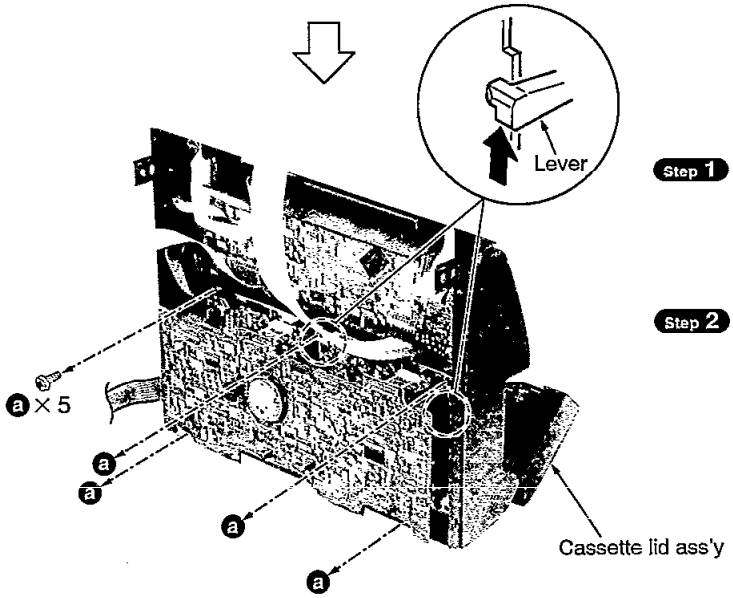
The parts on the LED P.C.B. and operation (3) P.C.B. can be replaced.

3. Checking for the mechanism control P.C.B. and confirmation of the cassette mechanism operation

Perform the items Step 1 ~ Step 4 of checking the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. (Refer to page 12.).

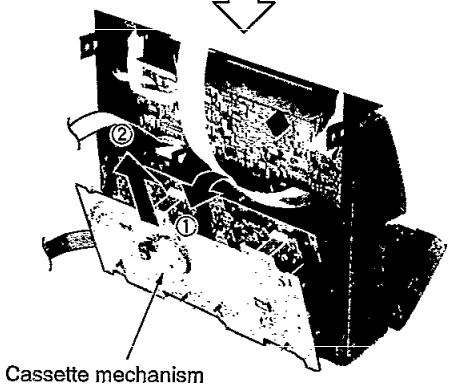


Check the mechanism control P.C.B. as shown left.

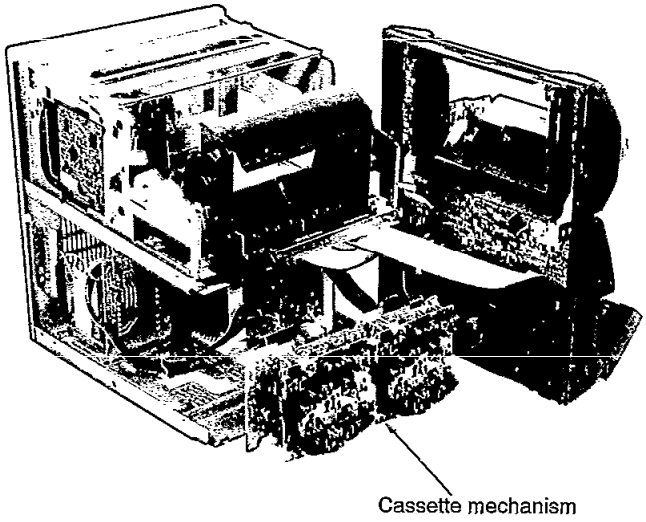


Step 1 Push the lever upward and open the cassette lid ass'y (for both DECK1 and DECK2).

Step 2 Remove the 5 screws. (ⓐ)



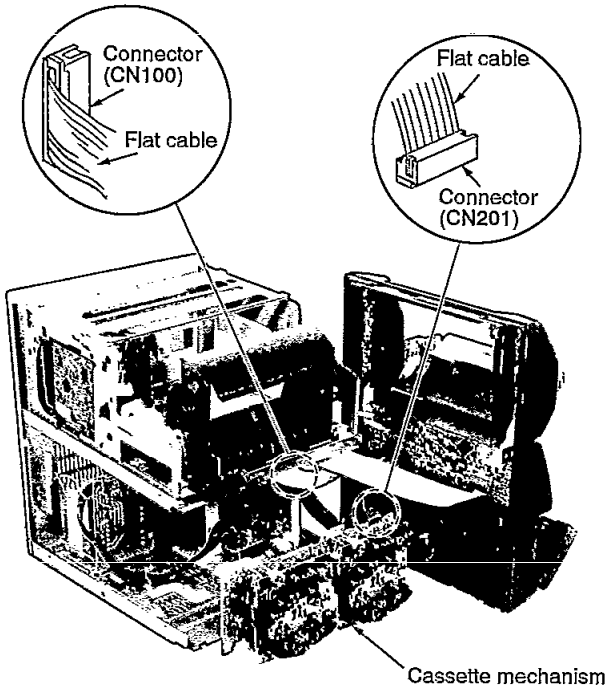
Step 3 Tilt the cassette mechanism in the direction of arrow ① and remove it in the direction of arrow ②.



Check the cassette mechanism as shown left.

※ Push the cassette operation button and confirm each operation visually.

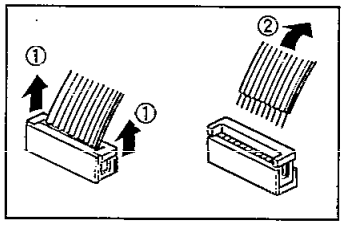
Removal of the mechanism control P.C.B. and mechanism P.C.B. for replacing parts.



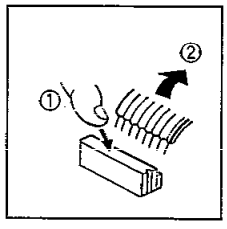
Step 4 Remove the flat cables from the connectors (2 points).

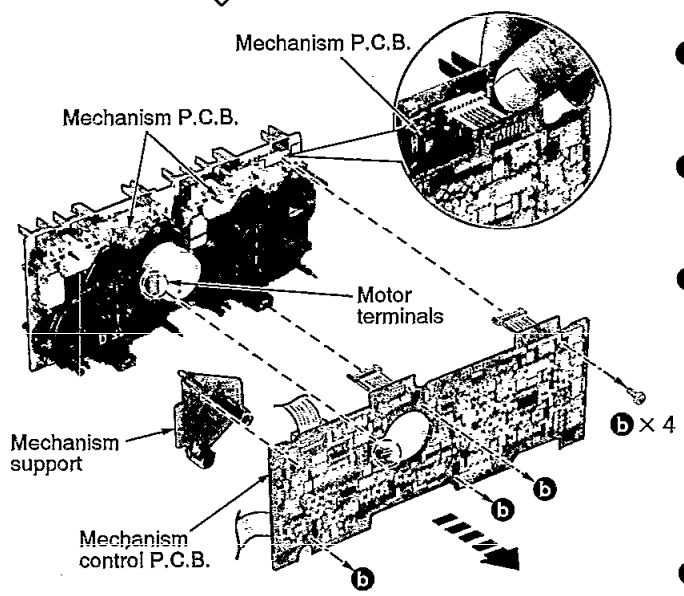
• Removal of the connector

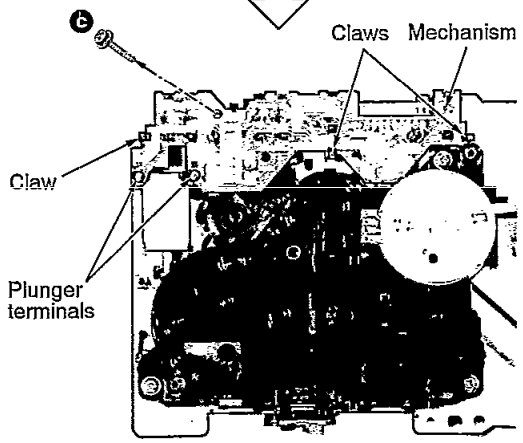
(CN100)



(CN201)







Step 5 Remove the 4 screws. (b)

Step 6 Unsolder the motor terminals. (4 points)

Step 7 Remove the mechanism control P.C.B..

※ When removing the mechanism control P.C.B., remove it holding the mechanism P.C.B..

The parts on the mechanism control P.C.B. can be replaced.

Step 8 Remove the mechanism support.

Step 9 Remove the 1 screw. (c)

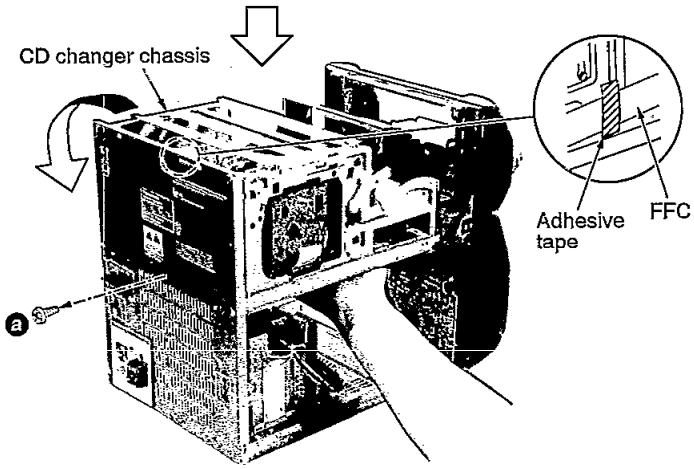
Step 10 Unsolder the plunger terminals. (2 points)

Step 11 Release the 3 claws, and then remove the mechanism P.C.B..

The parts on the mechanism P.C.B. can be replaced.

4. Checking for the tuner P.C.B., BI –AMP P.C.B. and power AMP P.C.B.

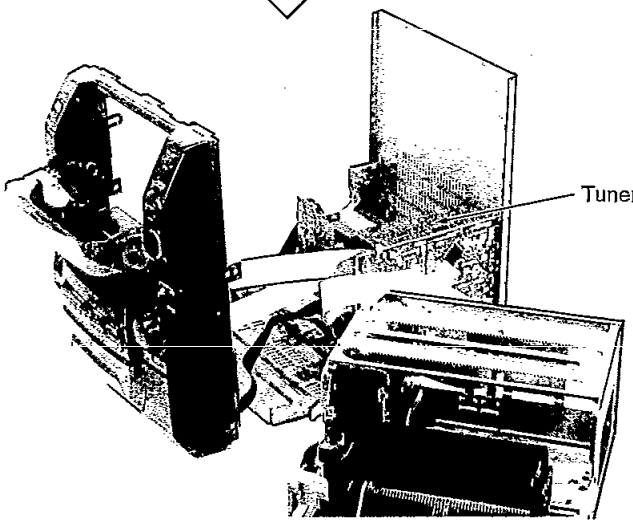
Perform the items **Step 1** ~ **Step 4** of checking the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. (Refer to page 12.).



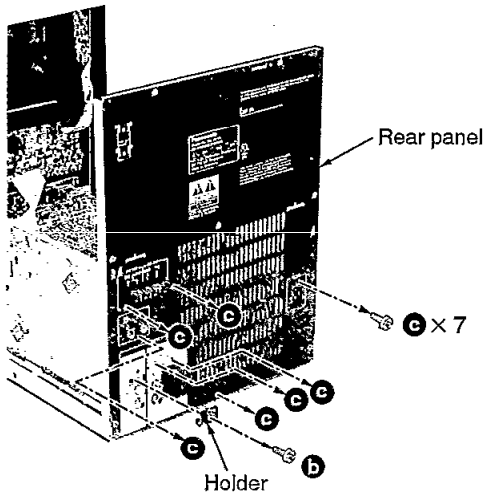
Step 1 Peel the adhesive tape.

Step 2 Remove 1 screw (a) with supporting the CD changer chassis by manually.

Step 3 Place the CD changer chassis to the right side of unit.



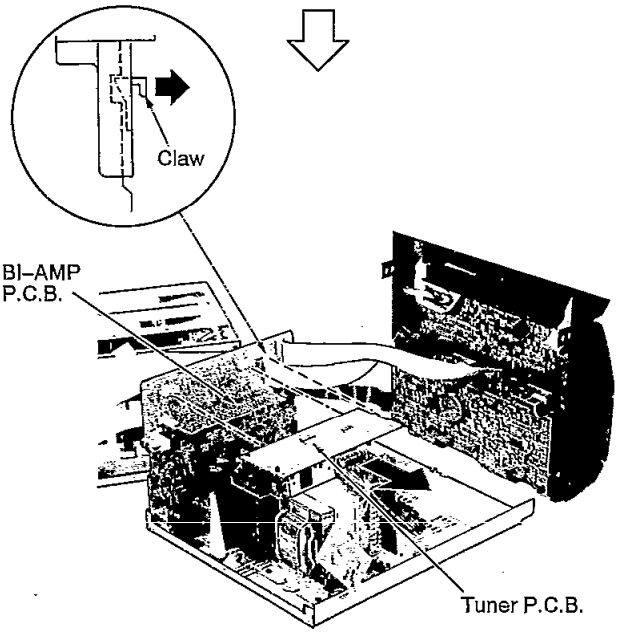
Check the tuner P.C.B. as shown left.



Step 4 Remove the 1 screw (ⓑ), and then remove the holder.

Step 5 Remove the 7 screws. (ⓒ)

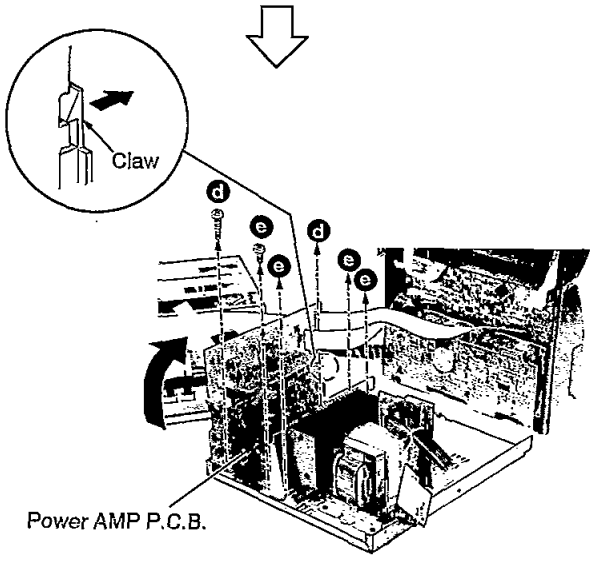
Step 6 Remove the rear panel.



Step 7 Release the 1 claw and remove the tuner P.C.B..

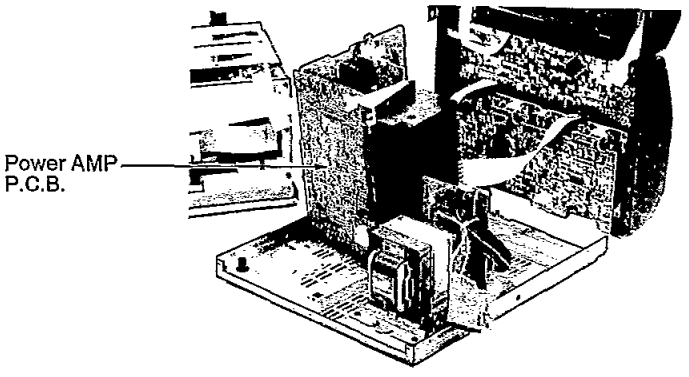
Check the BI–AMP P.C.B. as shown left.

※ Removal the tuner P.C.B. is not affected to the operation check of BI–AMP P.C.B..



Step 8 Remove the 6 screws. (d, e)

Step 9 Stand the power AMP P.C.B. in the direction of arrow.

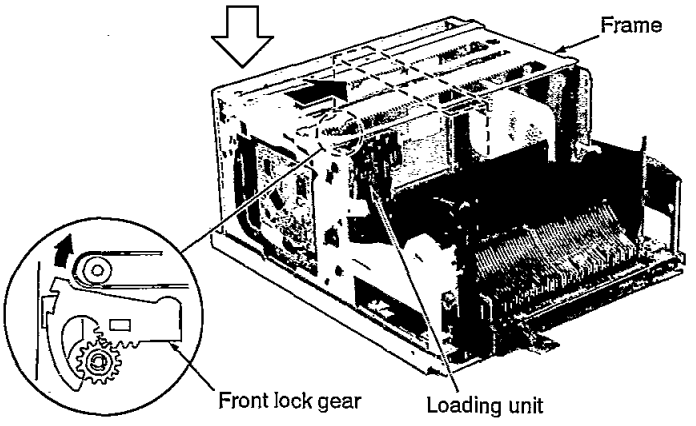


Check the power AMP P.C.B. as shown left.

5. Confirmation of loading unit operation.

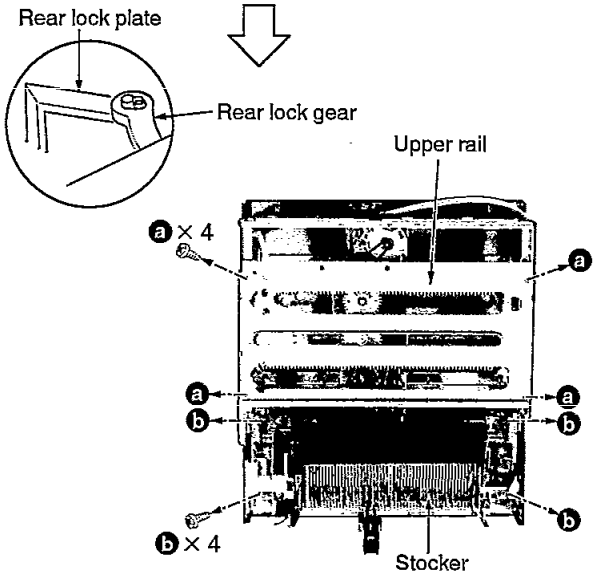
Perform the items Step 1 ~ Step 4 of checking the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. (Refer to page 12.).

Perform the items Step 1 ~ Step 3 of checking the tuner P.C.B., BI–AMP P.C.B. and power AMP P.C.B. (Refer to page 16.).



Step 1 Unlock the loading unit by moving the front lock gear manually in the direction of arrow.

Step 2 Move the loading unit manually in the right direction. (Move the loading unit to the right direction beyond the center of the frame.)

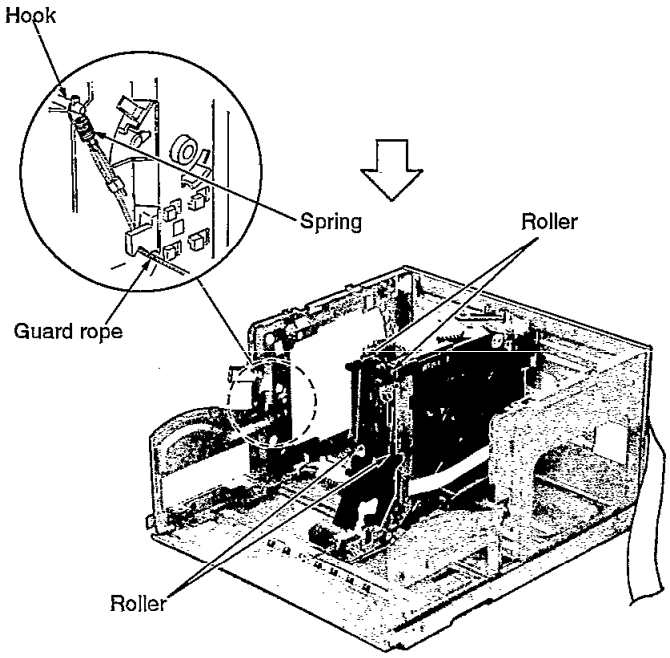


Step 3 Remove the 4 screws. (ⓐ)

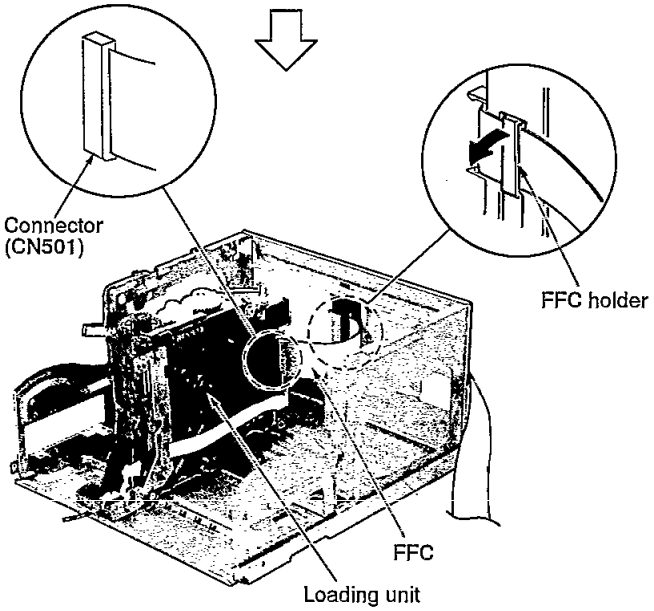
Step 4 Remove the rear lock gear from the hook of rear lock plate.

Step 5 Remove the upper rail.

Step 6 Remove the 4 screws (ⓑ), and then remove the stocker.



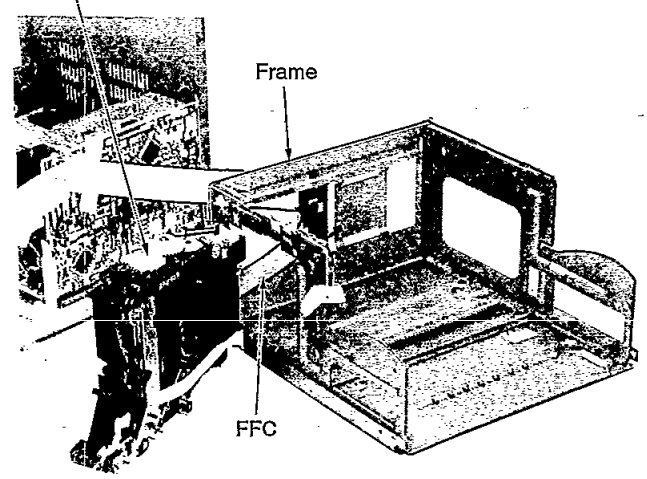
Step 7 Remove the spring from the hook and the guard rope.



Step 8 Move the loading unit forward.

Step 9 Remove the FFC holder.

Step 10 Remove the FFC from the connector.

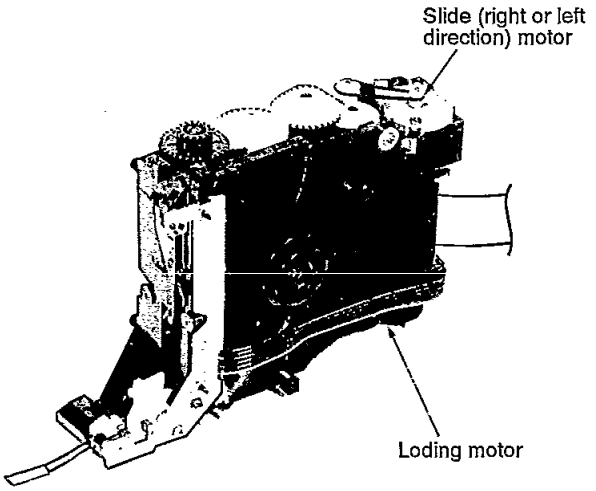


Step 11 Place the loading unit to left side of frame.

Step 12 Pass the FFC through the frame hole and re–connect it to the connrctor (CN501).

Preparation for operation checks is completed.

● Confirmation under test mode



Step 1 Set to the test mode and then, push the button B on front panel.

Step 2 The slide (right or left direction), motor rotates for approximate 20 seconds.

Step 3 Then, the loading motor rotates with repeating the following operation.

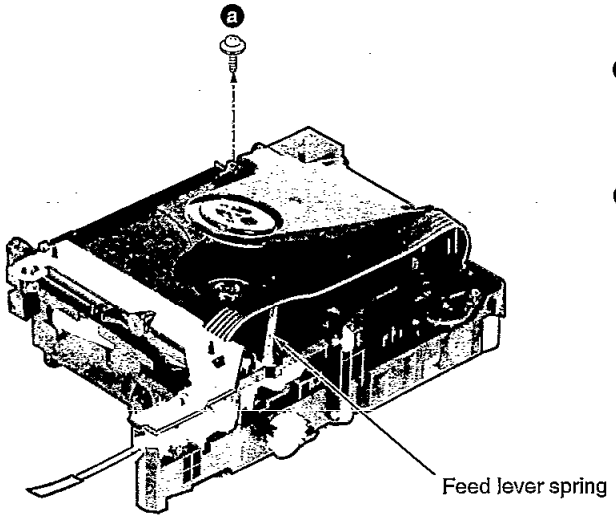
Load ➡ (Stop for 1 second) ➡ Unload ➡ (Stop for 1 second)

Make sure there are on unusual noise, binding or running over visually.

Step 4 To relieve the operation, set to the power off.

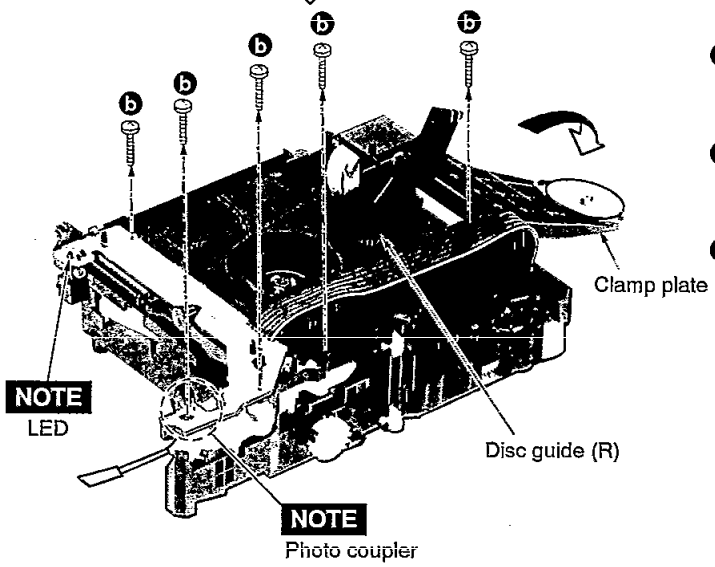
● Confirmation under manual operation

(For this operation, remove the parts described in "Test mode", and more the parts as follows.)



Step 1 Remove the 1 claws. (a)

Step 2 Remove the feed lever spring.

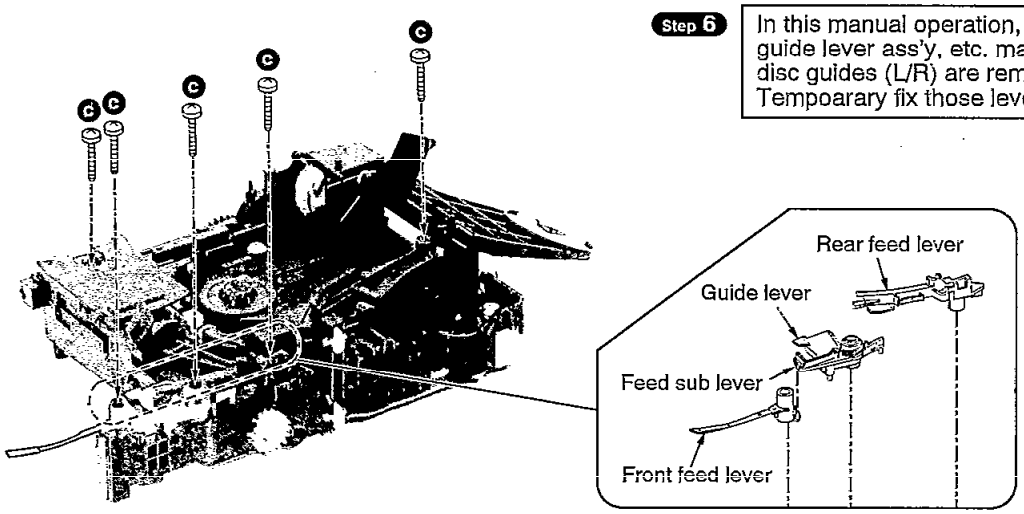


Step 3 Tilt the clamp plate backward.

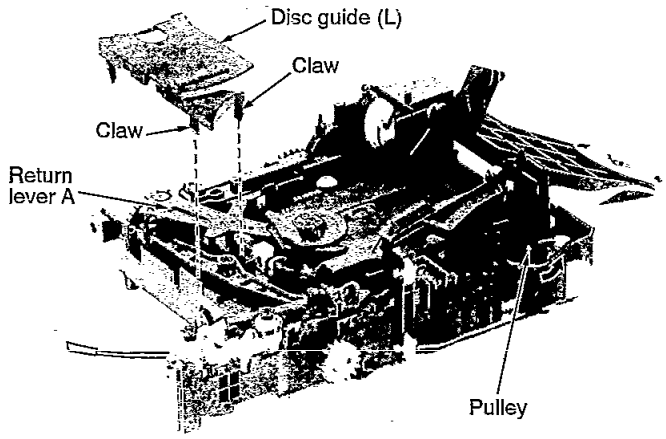
Step 4 Remove the 5 screws. (ⓑ)

Step 5 Remove the disc guide (R).

NOTE
Take care not to touch the LED or photo coupler by hand.

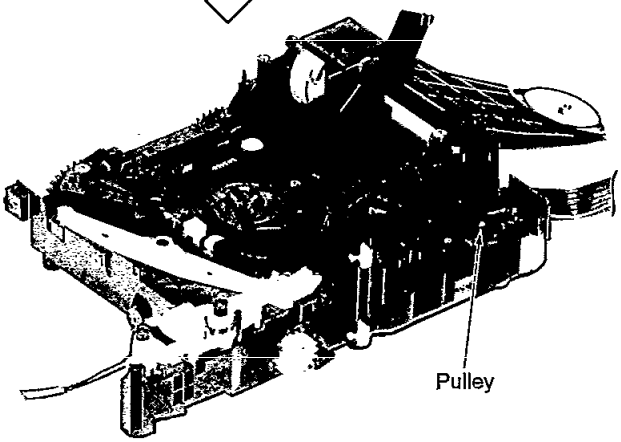


Step 6 In this manual operation, the rear / front feed levers, guide lever ass'y, etc. may be removed because the disc guides (L/R) are remove already.
Tempoarary fix those levers with 5 screws. (ⓒ)



Step 7 Rotate the pulley counterclockwise and move the return lever A.

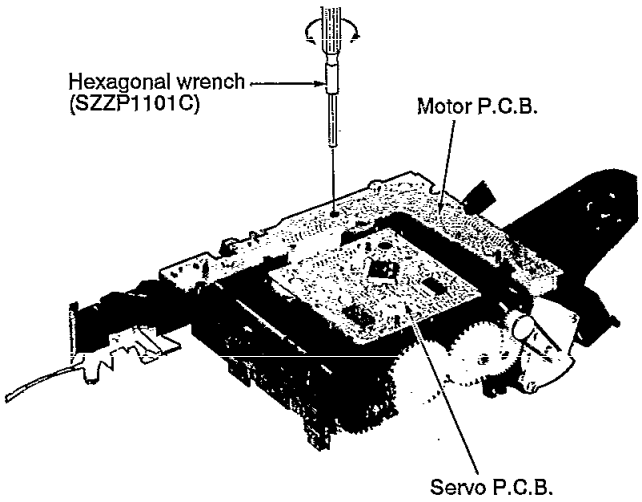
Step 8 Release the 2 claws and then, remove the disc guide (L).



In case of confirmation manualy, rotate the pulley as shown left.

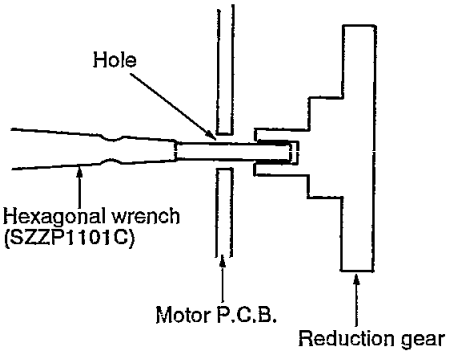
- Rotate clockwise : Loading operation
- Rotate counterclockwise : Unloading operation

(Upset the loading unit.)

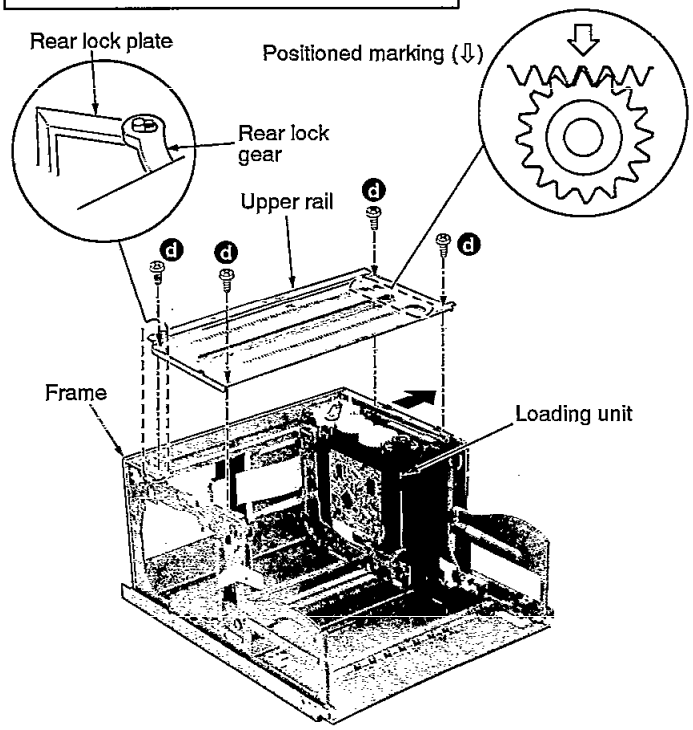


Or Rotate with 2mm hexagonal wrench (SZZP1101C).

- Rotate clockwise : Unloading operation
- Rotate counterclockwise : Loading operation



Notice for assembling of loading unit



Step 1 Move the loading unit to the right end of frame.

Step 2 Install the upper rail to the frame.

Step 3 Align the front travel gear and rear travel gear with the marked position of upper rail.

Step 4 Engage the rear lock gear with the rear lock plate.

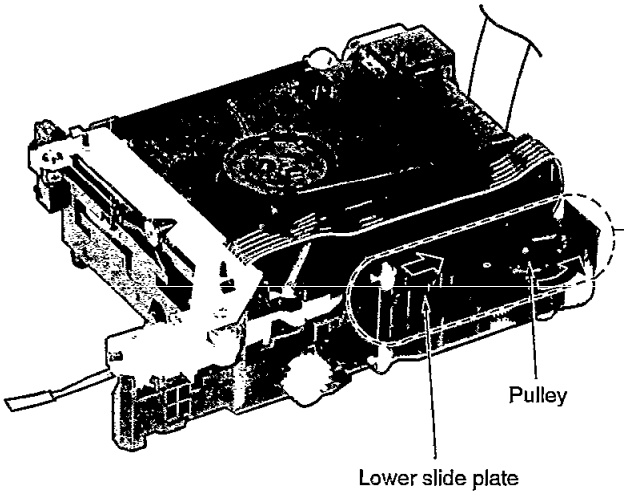
Step 5 Install the 4 screws (d) for upper rail.

6. Confirmation of focus operation and checking for CD servo P.C.B.

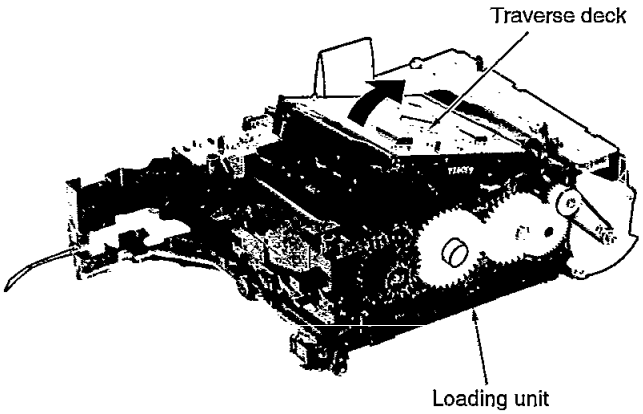
Perform the items Step 1 ~ Step 4 of checking the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. (Refer to page 12.).

Perform the items Step 1 ~ Step 3 of checking the tuner P.C.B., BI–AMP P.C.B. and power AMP P.C.B. (Refer to page 16.).

Perform the items Step 1 ~ Step 12 of checking the loading unit (Refer to pages 18~20.).

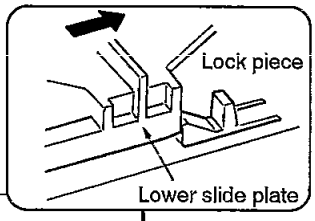


(Upset the loading unit.)

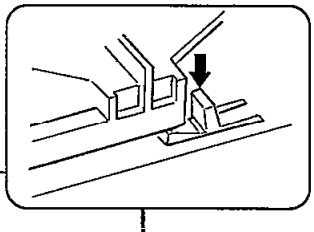


Step 1 Rotate the pulley counterclockwise.

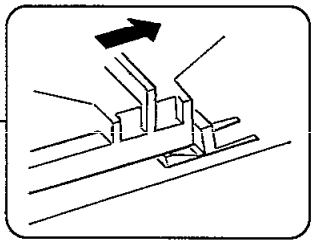
Step 2 Rotate the pulley until the lower slide plate is moved in the direction of arrow and then touched to the lock piece.



Step 3 Rotate the pulley counterclockwise fully with pressing the rib of lock piece.

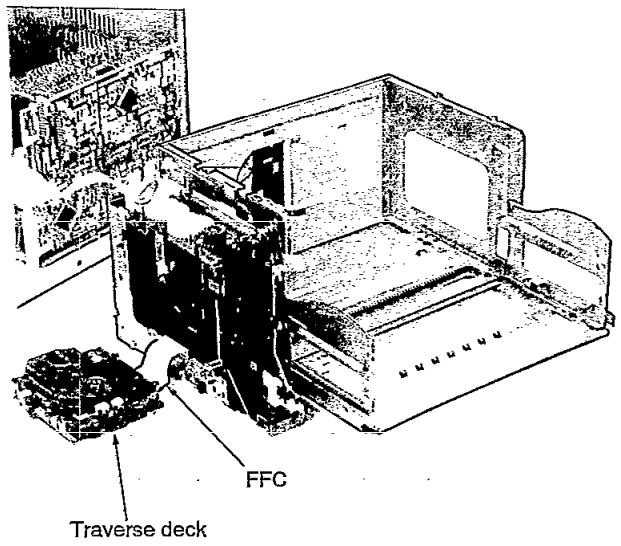


Step 4 Slide the lower slide plate manually in the direction of arrow until the lower slide plate touches the rib of lock piece.



Step 5 Lift the traverse deck from the loading unit.

● Confirmation of focus operation



Step 1 Set the switch to TEST MODE.

↓

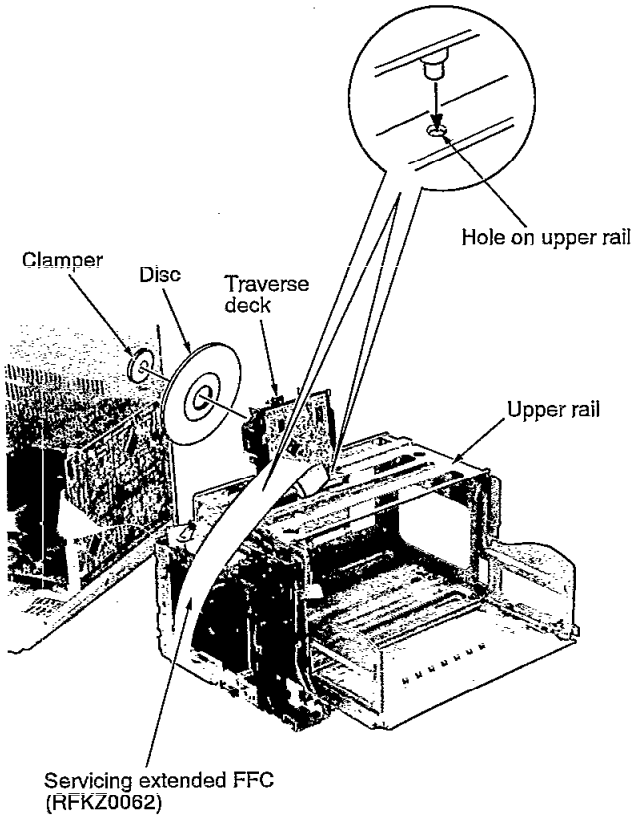
Step 2 Standby the traverse deck to individual operation.

↓

Step 3 Press the PLAY (▶) button.

Confirm the focus operation visually.

● Checking for the CD servo P.C.B.



Step 1 Remove the FFC between the traverse deck and loading unit.

↓

Step 2 Connect the servicing extended FFC between the traverse deck and loading unit.

↓

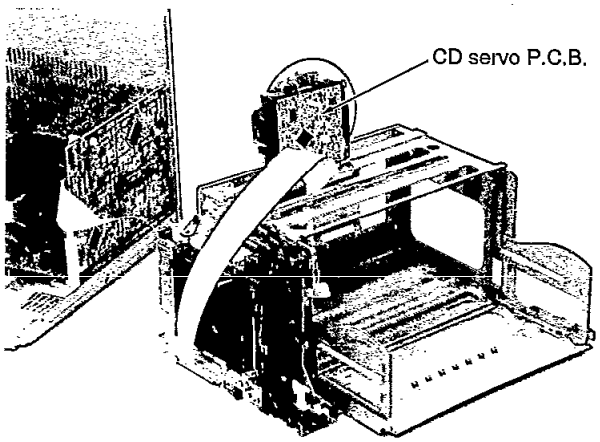
Step 3 Install the upper rail.
(The screws are not necessary for fixing.)

↓

Step 4 Locate the CD servo P.C.B. faced to you and then, align the traverse deck with the hole on upper rail.

↓

Step 5 Attach the disc to the clamper with magnet.



Step 6 Set the switch TEST MODE.

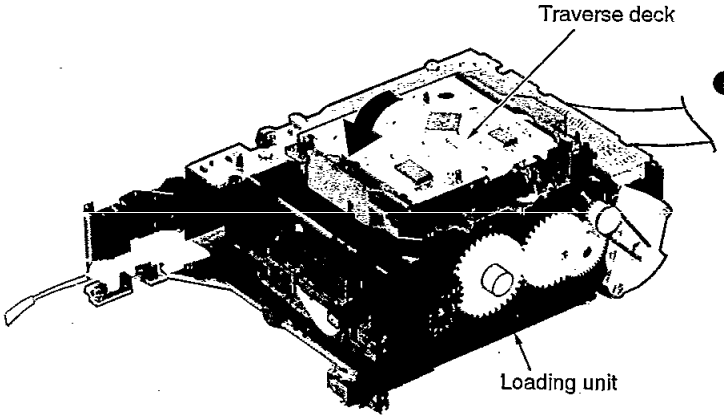
Step 7 Standby the traverse deck to individual operation.

Step 8 Press the PLAY (▶) button.

Step 9 CD play starts.

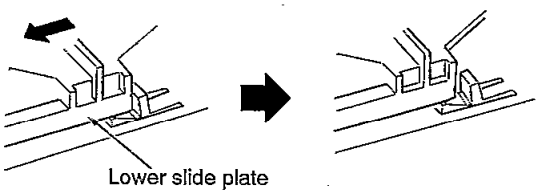
Check the CD servo P.C.B. as shown left.

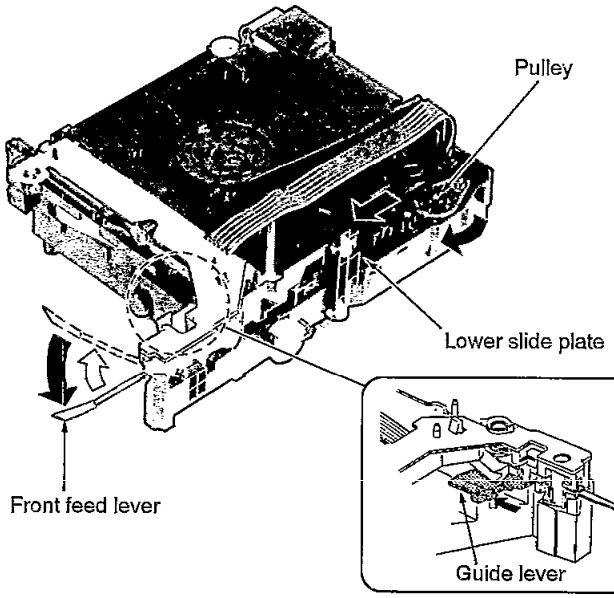
Notice for assembling the traverse deck



Step 1 Equip the traverse deck with the loading unit.

Step 2 Slide the lower slide plate in the direction of arrow with the supporting manually not to be fall free the traverse deck.





Step 3 While pushing the guide lever in the direction of arrow, rotate the pulley fully clockwise.

Confirmation

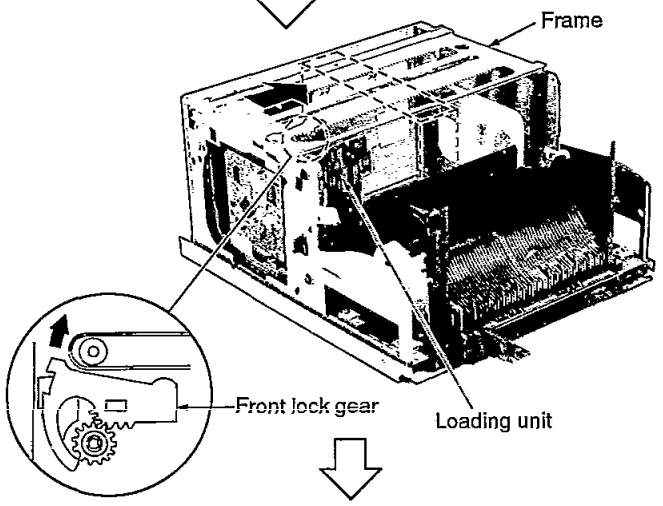
During the above operation, make sure that the front feed lever rotates to clockwise (Dot line) once and then, return to original position (Full line).

7. Confirmation of focus operation at sole traverse deck and checking for the CD servo P.C.B.

- The traverse deck can be removed individually without removal of loading unit.
- It is very convenient to perform the operation checks for traverse deck quickly.

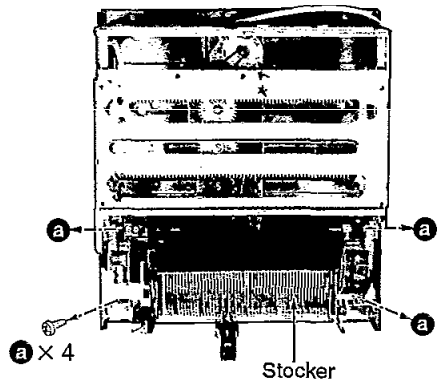
Perform the items Step 1 ~ Step 4 of checking the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. (Refer to page 12.).

Perform the items Step 1 ~ Step 3 of checking the tuner P.C.B., BI-AMP P.C.B. and power AMP P.C.B. (Refer to page 16.).



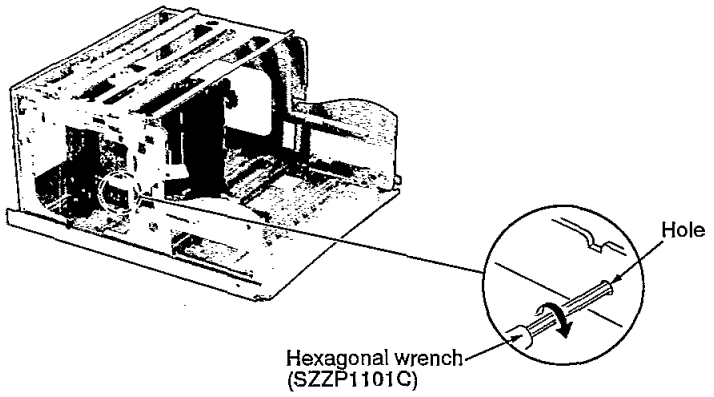
Step 1 Unlock the loading unit by moving the front lock gear manually in the direction of arrow.

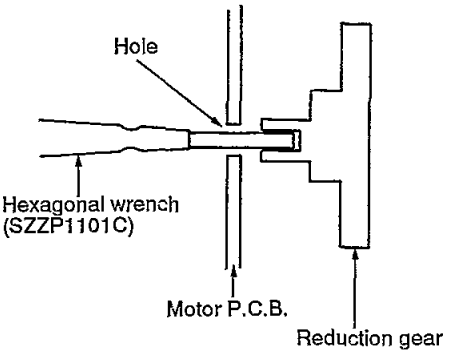
Step 2 Move the loading unit manually in the right drection. (Move the loading unit to the right direction beyond the center of the frame.)

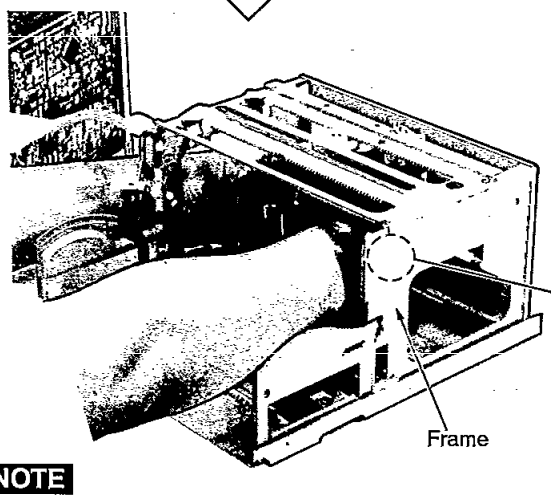


Step 3 Remove the 4 screws (ⓐ), and then remove the stocker.

Step 4 Rotate the reduction gear B clockwise with 2mm type hexagonal wrench (SZZP1101C).

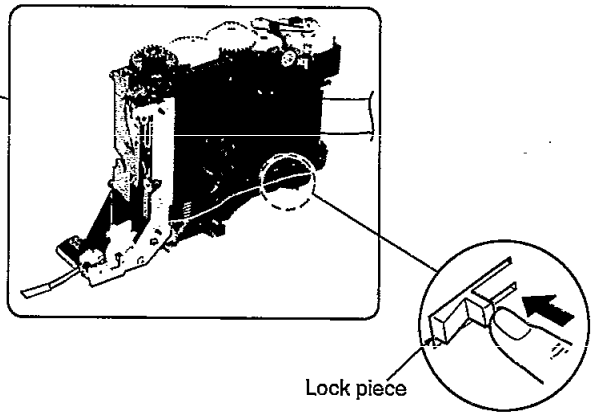


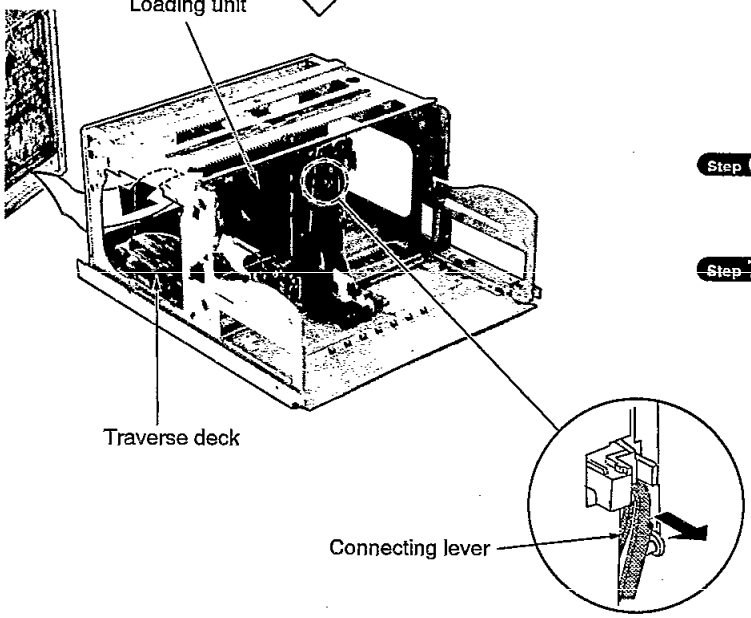




NOTE
Handle the edge of frame with care.

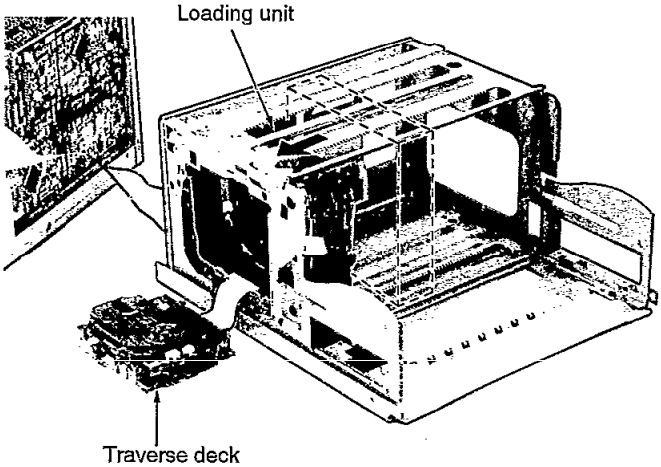
Step 5 When inserting the right hand into the right sided frame and pressing the lock piece in the direction of arrow, rotate the hexagonal wrench clockwise by left hand.





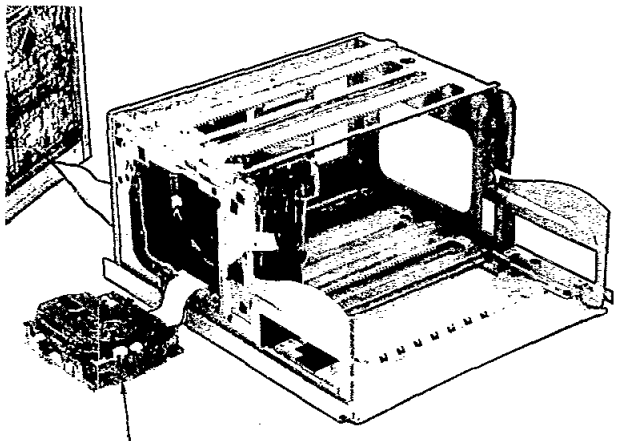
Step 6 Separate the traverse deck from the loading unit.

Step 7 Pull the connecting lever the direction of arrow.



Step 8 Move the loading unit to the left end.

● Confirmation of focus operation



Step 1 Set the switch to TEST MODE.

↓

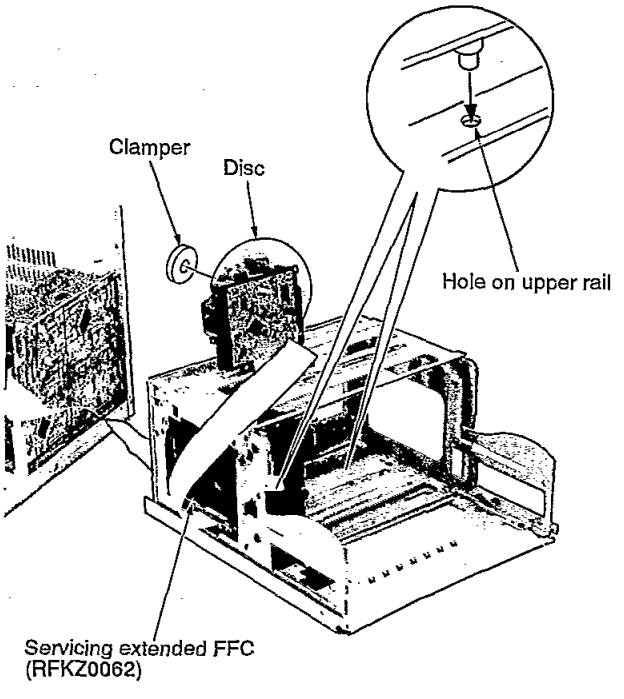
Step 2 Standby the traverse deck to individual operation.

↓

Step 3 Press the PLAY (▶) button.

Confirm the focus operation visually.

● Checking for the CD servo P.C.B.



Step 1 Remove the FFC between the traverse deck and loading unit.

↓

Step 2 Connect the servicing extended FFC between the traverse deck and loading unit.

↓

Step 3 Locate the CD servo P.C.B. faced to you and then, align the traverse deck with the hole on upper rail.

↓

Step 4 Attach the disc to the clamper with magnet.

↓

Step 5 Set the switch to TEST MODE.

↓

Step 6 Standby the traverse deck to individual operation.

↓

Step 7 Press the PLAY (▶) button.

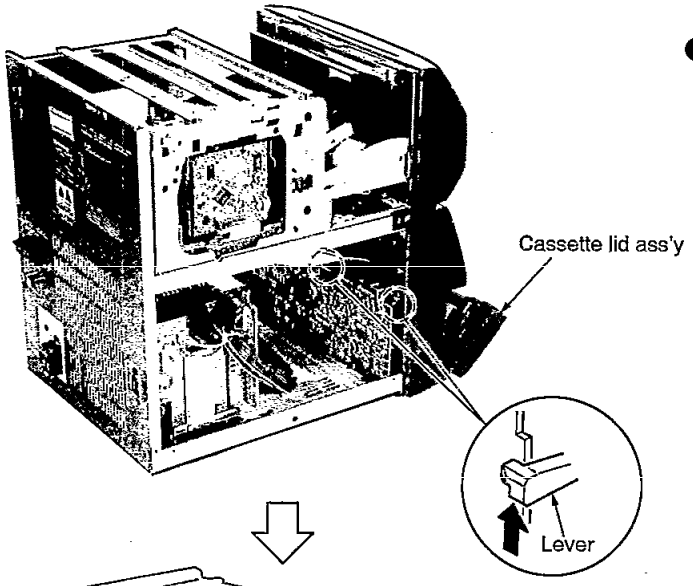
↓

Step 8 CD play starts.

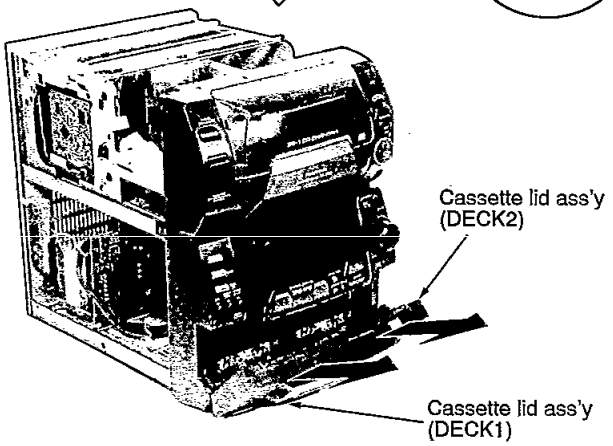
Check the CD servo P.C.B. as shown left.

■ Main Component Replacement Procedures

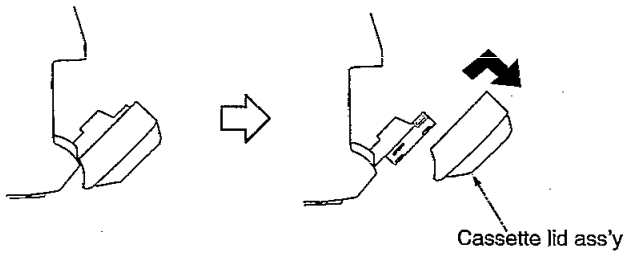
1. Replacement for the cassette lid ass'y



Step 1 Push the lever upward and open the cassette lid ass'y (for both DECK1 and DECK2).

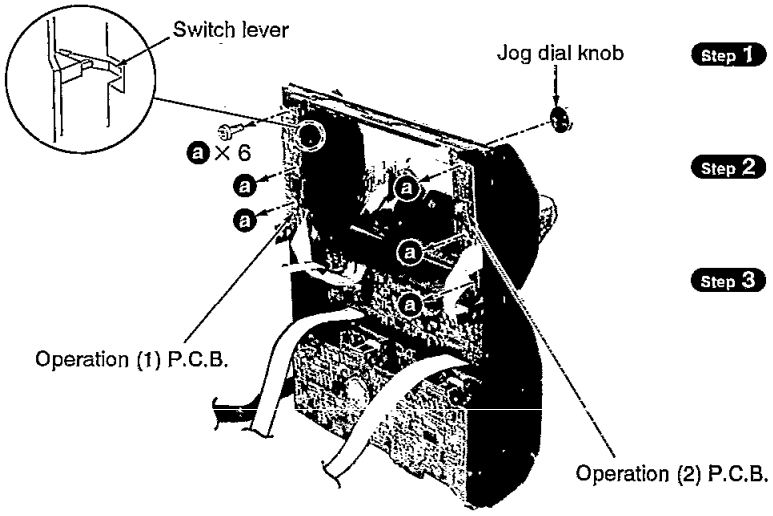


Step 2 Slide and remove the cassette lid ass'y (for both DECK1 and DECK2).



2. Replacement for the CD panel window and CD lid ornament

Perform the items Step 1 ~ Step 4 of checking the FL P.C.B., operation (1) P.C.B. and operation (2) P.C.B. (Refer to page 12.).



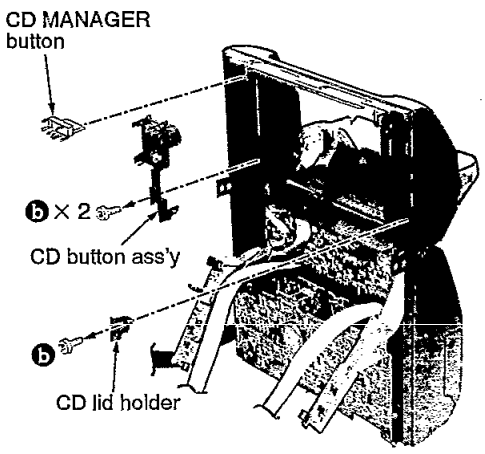
Step 1 Remove the 6 screws. (ⓐ)

Step 2 Remove the jog dial knob.

Step 3 Remove the operation (1) P.C.B. and operation (2) P.C.B..

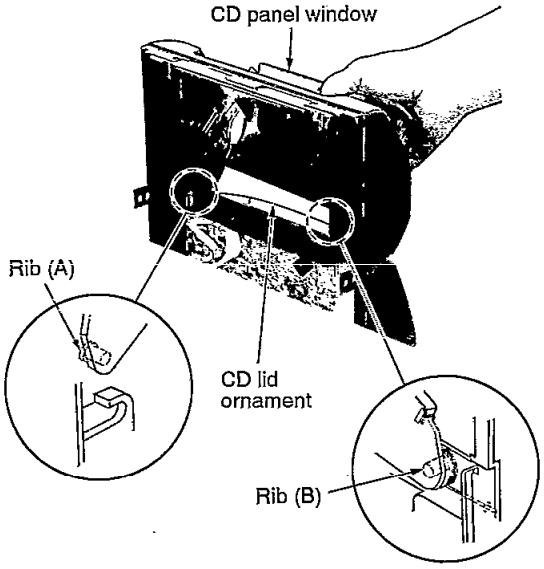
Caution

Be care not to damage the switch lever when removing the operation (1) P.C.B..



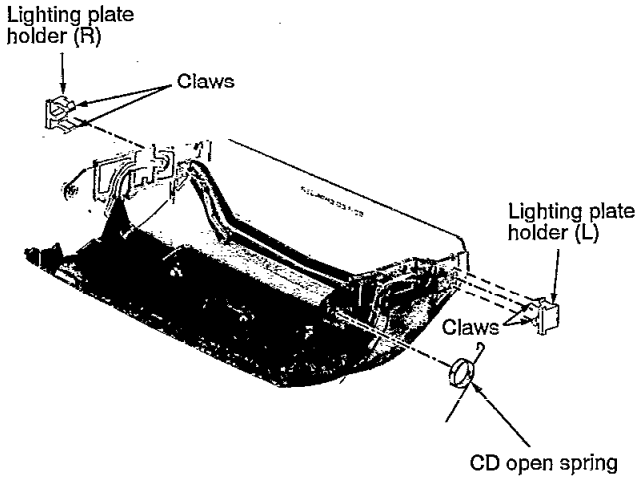
Step 4 Remove the 2 screws. (ⓑ)

Step 5 Remove the CD MANAGER button, CD button ass'y and CD lid holder.



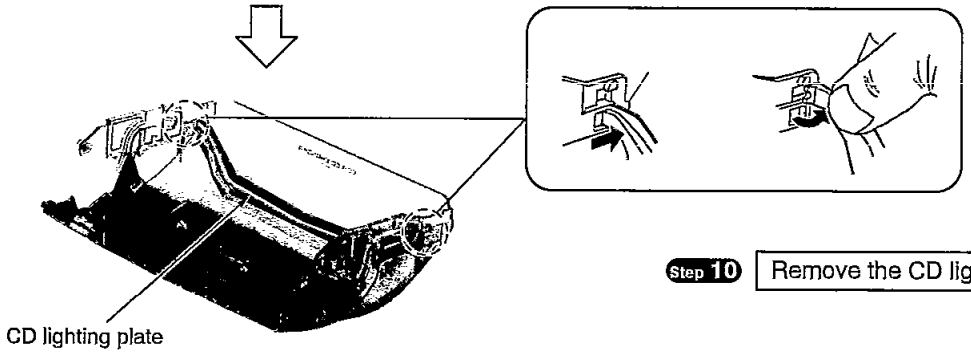
Step 6 Lift up the CD panel window and CD lid ornament upward by manually.

Step 7 Release the rib (A) of CD panel window first and rib (B), and then remove the CD panel window and CD lid ornament.

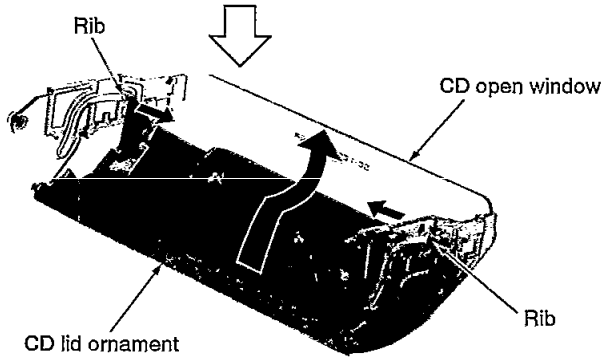


Step 8 Remove the CD open spring.

Step 9 Release the 2 claws and remove the lighting plate holder.



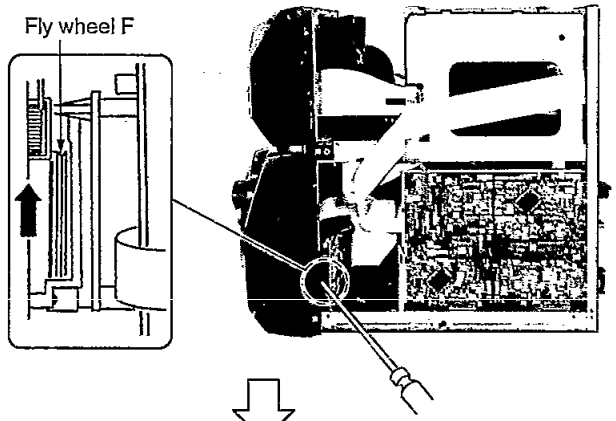
Step 10 Remove the CD lighting plate.



Step 11 Slide the CD lid ornament to the inner of CD panel window.

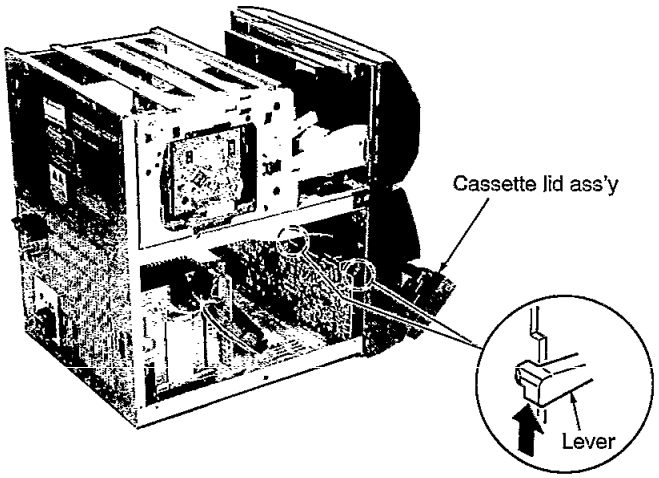
Step 12 Release the both ribs of CD lid ornament.

■ Measure for Tape Trouble



Step 1 In case of winding the cassette tape, for both DECK1 or DECK2, rotate the flywheel F of DECK2 in the direction of arrow (➡).

Step 2 Wound cassette tape to the capstan or pinch roller will be released.



Step 3 Push the lever upward and open the cassette lid ass'y.

Step 4 Take the cassette tape off.

■ Measurements And Adjustments

- **Measurement Condition**
  - Reverse-mode selector switch; ⇄
  - Dolby NR switch; OFF
  - Make sure heads are clean
  - Make sure capstan and pressure roller are clean.
- **Measuring Instrument**
  - EVM (Electronic Voltmeter)
  - Oscilloscope
  - Digital frequency counter
  - AF oscillator
  - ATT (Attenuator)
  - DC voltmeter
  - Resistor (600Ω)
- **Test tape**
  - QZZCWAT; Tape speed adjustment (3kHz, —10dB).
  - QZZCFM; Head azimuth adjustment (8kHz, —20dB).
    - Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, —20dB).
    - Playback gain adjustment (315Hz, 0dB).
  - QZZCRA; Overall frequency response, Overall gain adjustment Normal reference blank tape.
  - QZZCRX; CrO2 reference blank tape.
  - QZZCRZ; Metal reference blank tape.

HEAD AZIMUTH ADJUSTMENT (DECK 1,2)

Caution:

- Please replace both azimuth adjustment screws (RHD17015) used for to new ones simultaneously when readjusting the head azimuth.
  Even if you wish to readjust the head azimuth without replacing the screws a fine adjustment can not be done because of the screw-locking bond adhered to the azimuth screw.
- Please remove the screw-locking bond left on the head base when replacing the azimuth screw.
- If you wish to readjust the head azimuth, be sure to adjust with adhering the cassette tape closely to the mechanism by pushing the center of cassette tape with your finger. (Shown in Fig. 2)

1. Playback the azimuth adjustment portion (8kHz, —20dB) of the test tape (QZZCFM) in the forward play mode. Vary the azimuth adjusting screw until the output of the R-CH or L-CH are maximized.
2. Perform the same adjustment in the reverse play mode.
3. After the adjustment, apply screwlock to the azimuth adjusting screw.

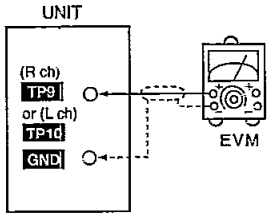


Fig.1

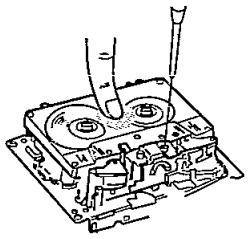


Fig. 2

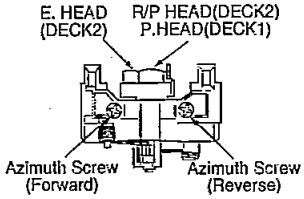


Fig. 3

TAPE SPEED ADJUSTMENT (DECK 1,2)

(Standard Value: 3000±90Hz)

1. Playback the middle portion of the test tape (QZZCWAT).
2. Adjust Motor Volume so that the output is within the adjustment target.

Adjustment target: 3000Hz±45Hz

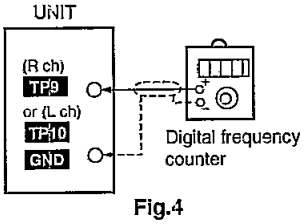


Fig.4

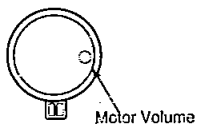


Fig.5

PLAYBACK GAIN ADJUSTMENT (DECK 1,2)

1. Playback the gain adjusted portion (315Hz, 0dB) of the test tape (QZZCFM).
2. Adjust VR101, VR102(DECK1) , and VR103, VR104(DECK2) so that the output is within the adjustment target. (Shown in Fig. 15.)

Standard value: 276mV±30mV

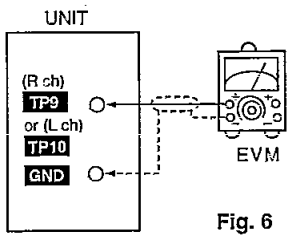


Fig. 6

PLAYBACK FREQUENCY RESPONSE (DECK1,2)

1. Playback the frequency response portion (315Hz, 12.5kHz~63Hz, —20dB) of the test tape (QZZCFM).
2. Assure that the frequency response is within the range shown in Fig. 8 for both L-CH and R-CH.

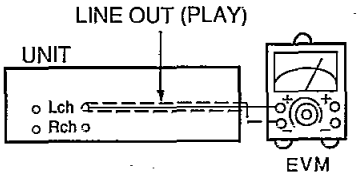


Fig. 7

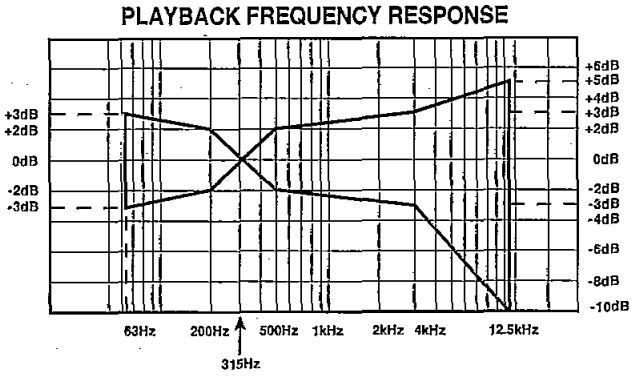


Fig. 8

BIAS OSC FREQUENCY ADJUSTMENT (DECK2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Adjust L201 so that the output is within the adjustment target. (Shown in Fig. 15.)

Standard value: 98kHz±8kHz

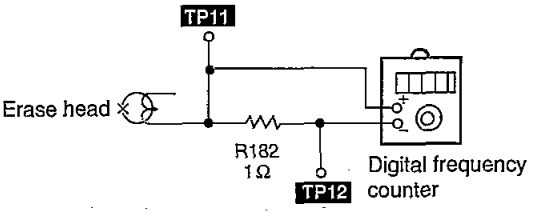


Fig. 9

RECORD BIAS VOLTAGE CONFIRMATION (DECK 2)

1. Insert the Normal blank test tape (QZZCRA).
2. Set the unit to the Record Pause mode.
3. Make sure that the output is within the standard value.
4. Insert the CrO2 tape (QZZCRX).
5. Repeat steps 2 and 3.

Standard value(Normal): 19mV±4mV
Standard value(CrO2): 27mV±5mV

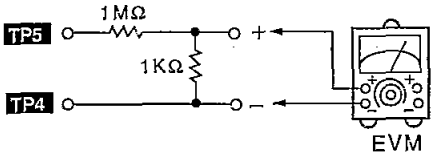


Fig. 10

ERASE VOLTAGE CONFIRMATION (DECK2)

1. Insert the Normal blank test tape (QZZCRA).
2. Set the unit to the Record Pause mode.
3. Make sure that the output is within the standard value.
4. Insert the CrO2 tape (QZZCRX).
5. Repeat steps 2 and 3.

Standard value(Normal): more than 100mV
Standard value(CrO2): more than 150mV

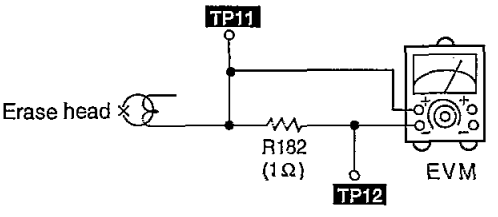


Fig. 11

OVERALL FREQUENCY RESPONSE

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Apply a reference input signal (1kHz, —24dB) through an attenuator.
3. Attenuate the signal by 20dB and adjust the frequency from 50Hz~10kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in Fig. 12,13 in comparison to the reference frequency (1kHz).
6. Repeat steps 2~5 above using the CrO2 tape (QZZCRX) and the Metal tape (QZZCRZ) increasing the frequency range to 12.5kHz (50Hz~12.5kHz).
7. Assure that the level is within the range shown in Fig. 12,13.

Normal Overall frequency response chart (NR OUT)

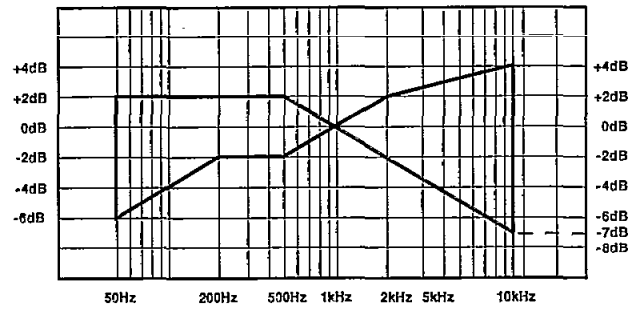


Fig. 12

CrO2, Metal Overall frequency response chart (NR OUT)

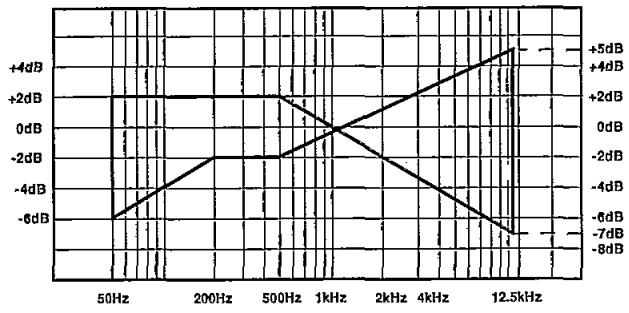


Fig. 13

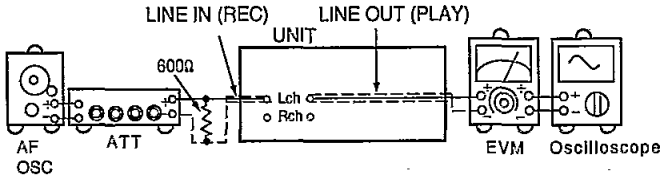
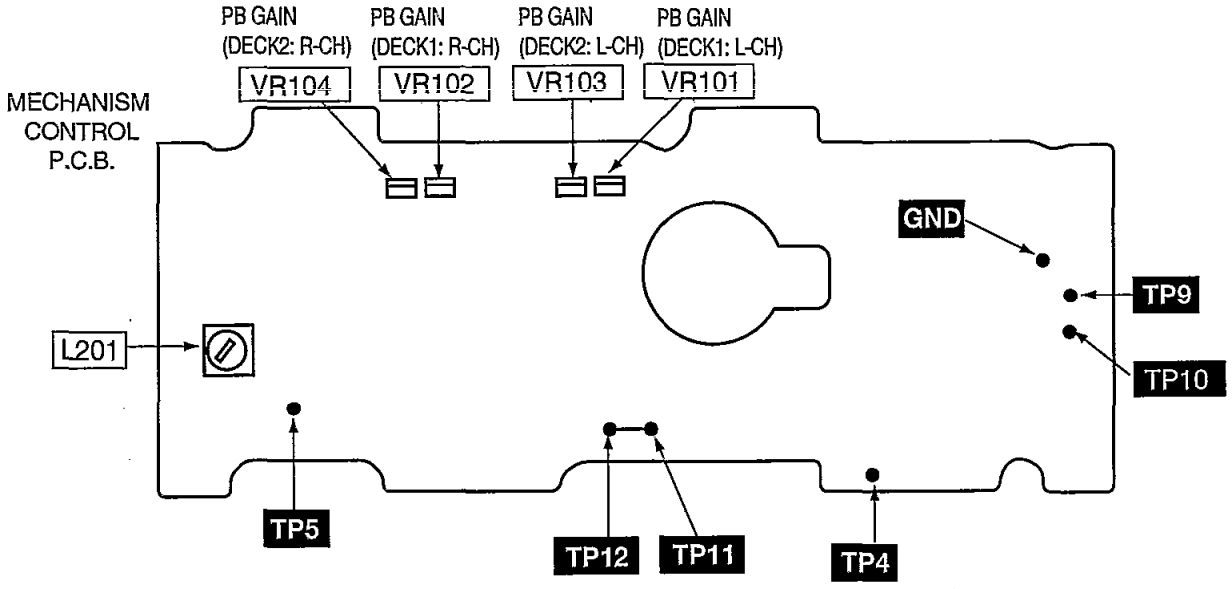


Fig. 14

● Adjustment points
<Cassette deck section>



■ Schematic Diagram

A CD SERVO SIRCUIT 36,37
B TUNER CIRCUIT 38,39
C FM FRONT END (Z120) CIRCUIT 38
D MECHANISM CONTROL CIRCUIT ..... 40~43
E MECHANISM (DECK2) CIRCUIT 42
F MECHANISM (DECK1) CIRCUIT 42
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H LED CIRCUIT 44
I OPERATION (3) CIRCUIT 44
J OPERATION (1) CIRCUIT 44
K OPERATION (2) CIRCUIT 44
L SLIDE MOTOR CIRCUIT 47
M PHOTO TR. CIRCUIT 47
N MOTOR CIRCUIT 47
O MAIN CIRCUIT ..... 47~50
P BI-AMP CIRCUIT 50
Q POWER AMP CIRCUIT ..... 51~52
R POWER SUPPLY CIRCUIT 52
S AC IN CIRCUIT 52

Notes:
- **S501:** Lock det. (LOCK DET/ MLOCK) switch.
- **S502:** Clamp det. (CLAMP DET) switch.
- **S503:** Clamp det. (CLAMP DET/ FREE) switch.
- **S700:** Power "STANDBY ⏻ /ON"(POWER, STANDBY ⏻ /ON) switch.
- **S701:** Rest detect. (REST) switch.
- **S701:** Single play (SINGLE ▶) switch.
- **S704:** CD (CD) switch.
- **S705:** Tuner/band select (TUNER/BAND) switch.
- **S706:** Tape/Deck select (TAPE/DECK1/2) switch.
- **S707:** Auxiliary input (AUX) switch.
- **S708:** Clock/timer set (CLOCK/TIMER) switch.
- **S709:** Record timer/play timer (◴ REC/◴ PLAY) switch.
- **S710:** Deck1 open (DECK1/⏏ OPEN) switch.
- **S711:** Deck2 open (DECK2/⏏ OPEN) switch.
- **S712:** Super woofer ON/OFF (SUPER WOOFER) switch.
- **S713:** Level (LEVEL) switch.
- **S714:** Memory set (MEMORY SET ▶▶/▶▶I) switch.
- **S715:** FM mode/BP (FM MODE BP I◀◀/◀◀) switch.
- **S717:** Play (CD ▶) switch.
- **S718:** Disc/track select (DISC/ TRACK) switch.
- **S719:** CD management (CD MANAGER) switch.
- **S720:** 3D space EQ (3D SPACE EQ) switch.
- **S721:** Reverse-mode select (REV. MODE) switch.
- **S723:** Tape edit (TAPE EDIT) switch.
- **S724:** Recording start/stop (● REC/STOP) switch.
- **S725:** Tune/tape adj. (TUNE/TIME ADJ ∧ ▶) switch.
- **S726:** Tune/mode adj. (TUNE/MODE ■) switch.
- **S727:** Tune/time adj. (TUNE/TIME ADJ ∨ ◀II) switch.
- **S728:** Display select/demonstrarion mode (-DISPLAY/—DEMO) switch.
- **S951:** Deck1 Mode (MODE) switch.
- **S952:** Deck1 half (HALF) switch.
- **S953:** Deck1 ATS/CrO2 switch.
- **S971:** Deck2 mode (MODE) switch.
- **S972:** Deck2 half (HALF) switch.
- **S973:** Deck2 ATS/CrO2 switch.
- **S974:** Deck2 Reverse rec. inhibit (R.REC. INH.) switch.
- **S975:** Deck2 Foward rec. inhibit (F.REC. INH.) switch.

- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack).
  Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.
- Mesurement conditions:
  * The parenthesized is the voltage for test disc (1 kHz, L + R, 0 dB) in play mode, and the other, for no disc in stop mode.
  * AC adaptor is used for power supply.

- : Signal lines.
  ⇨: CD signal.
  ⇨: FM signal.
  ⇨: FM OSC signal.
  ⇨: AM signal.
  ⇨: AM OSC signal.
  ⇨: Playback signal.
  ⇨: REC signal.
  ⇨: Speaker (High) drive signal.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE 2A 250V FUSE.

RISK OF FIRE-REPLACE FUSE AS MARKED.

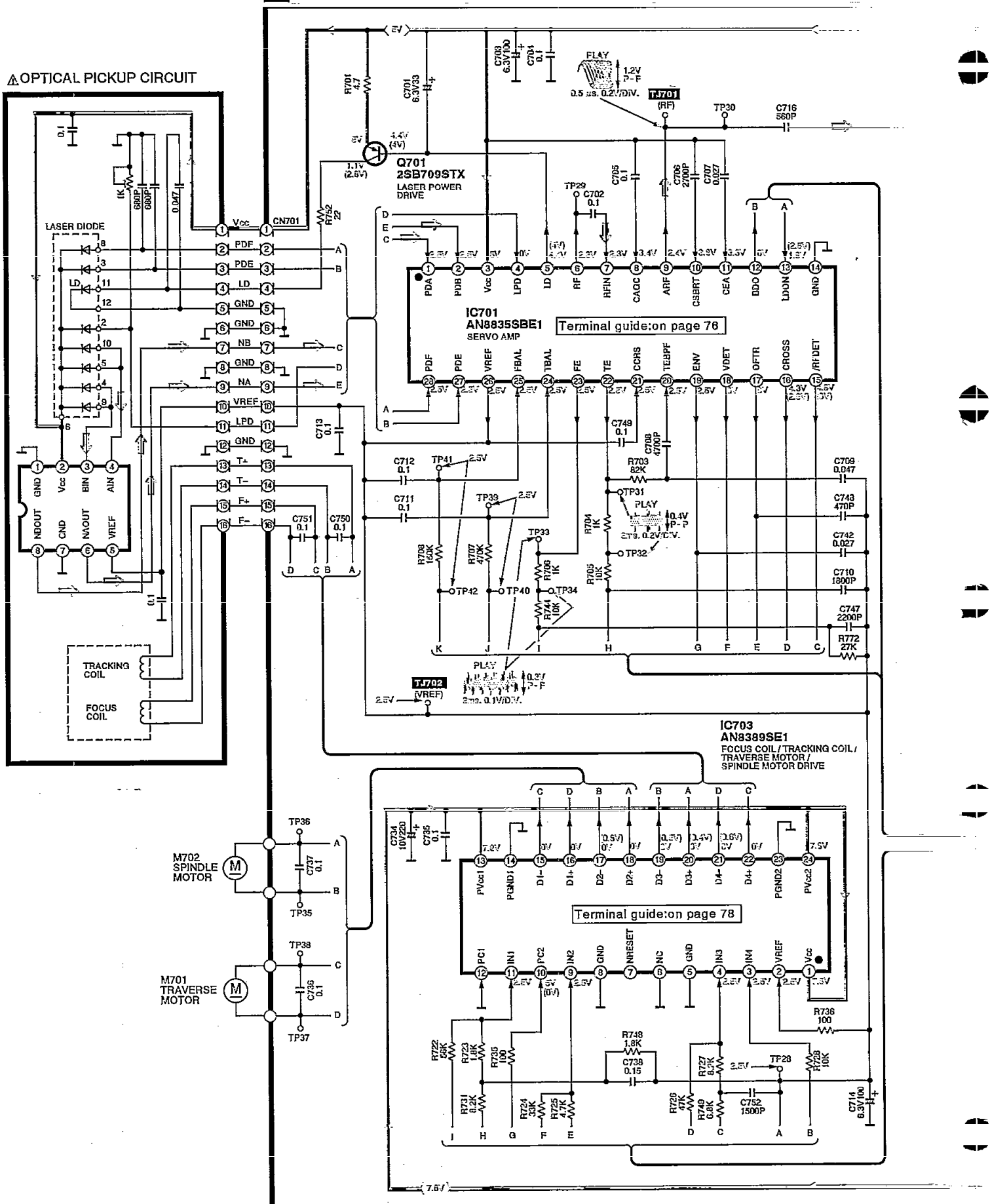
FUSE CAUTION

This symboi iocated near the fuse indicates that the fuse used is slow operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating, refer to the marking adjacent to the symbol.

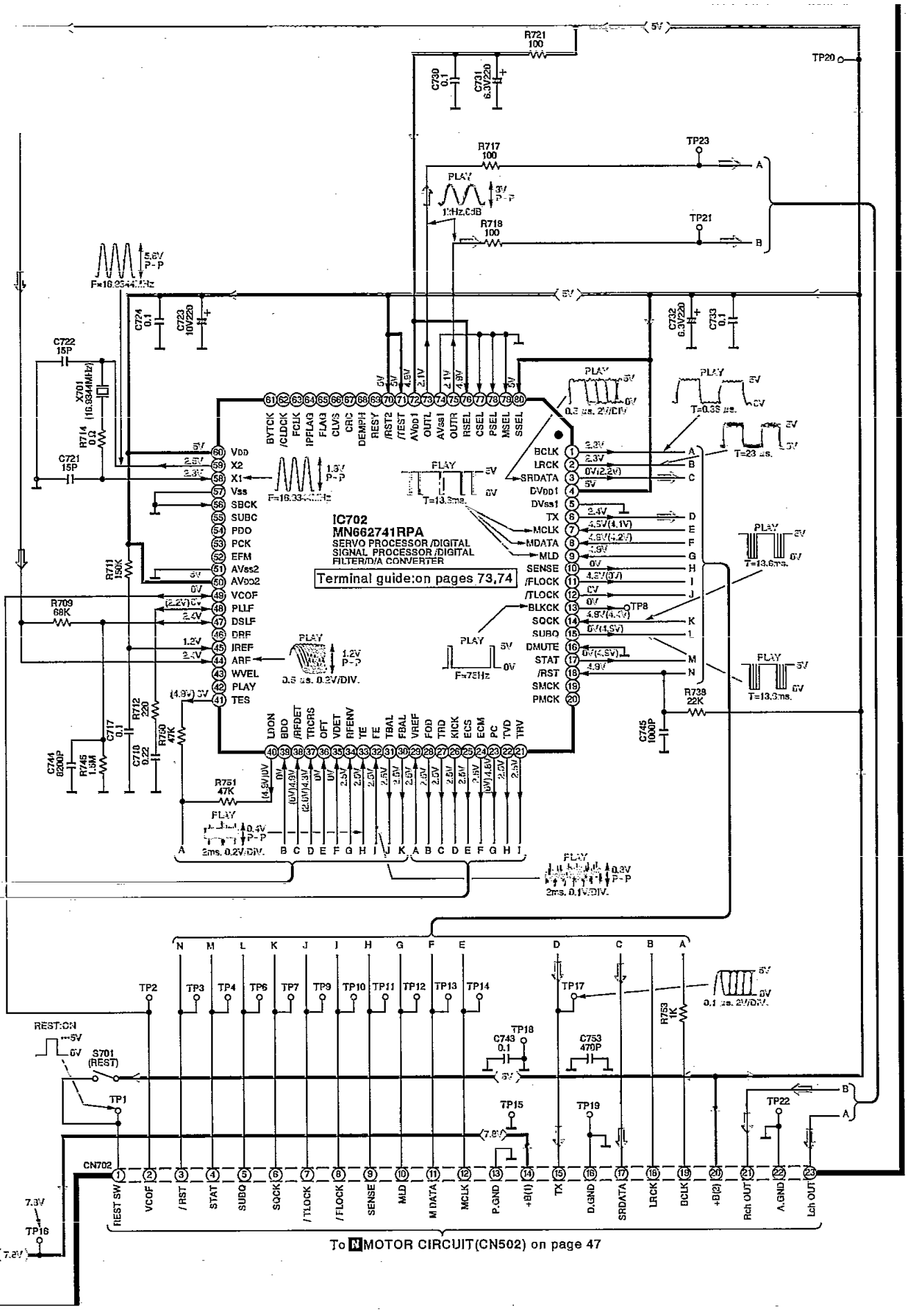
Ce symbole indique que le fusible utilisé est à trot. Pour une protection permanente, n' utiliser que des fusibles de mêne type. Ce dernier est indiqué là qù le présent symbole est apposé.

Caution!
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

A CD SERVO CIRCUIT (P.C.Board:on page 64)

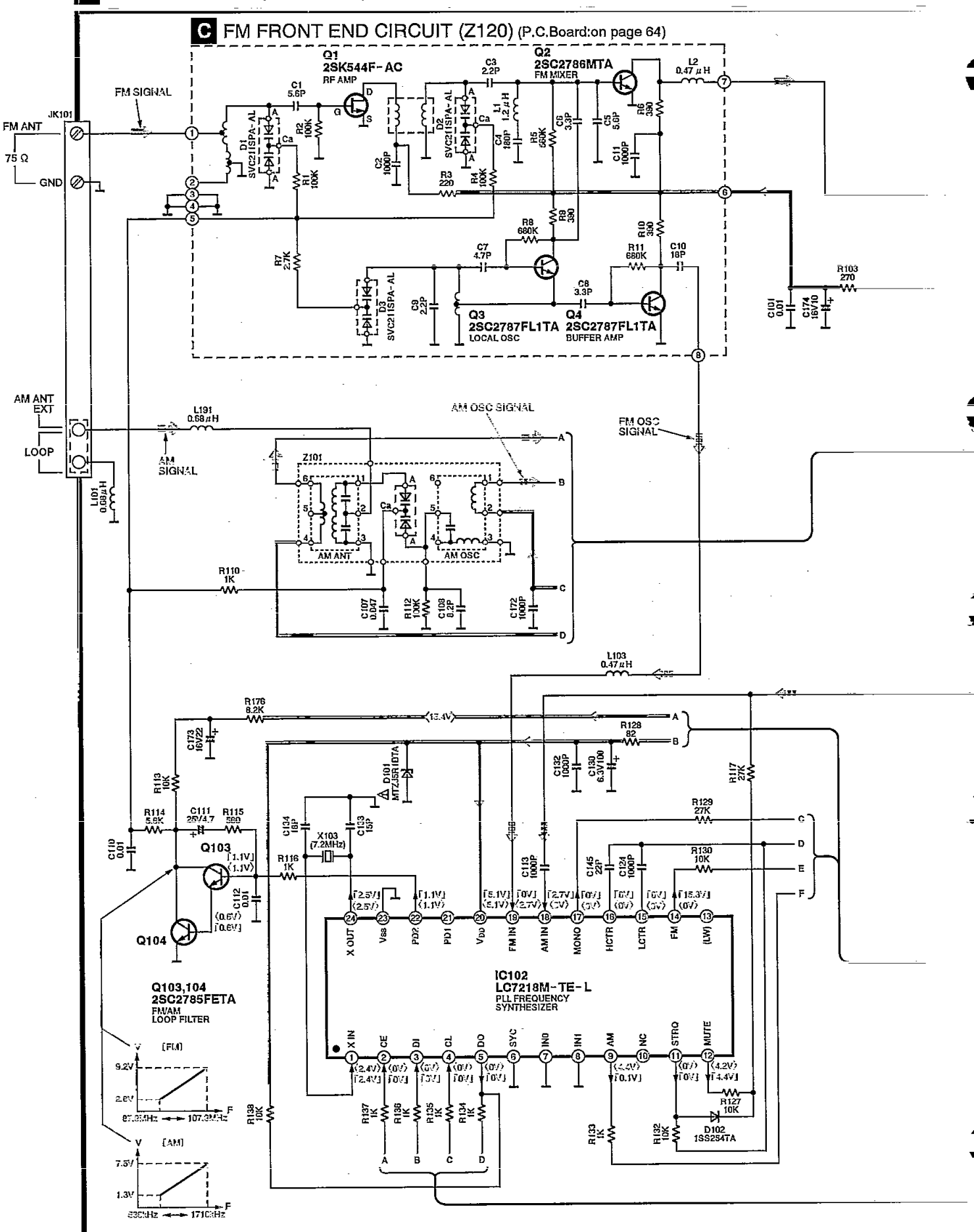


Notes: ● ⟹: CD signal line.

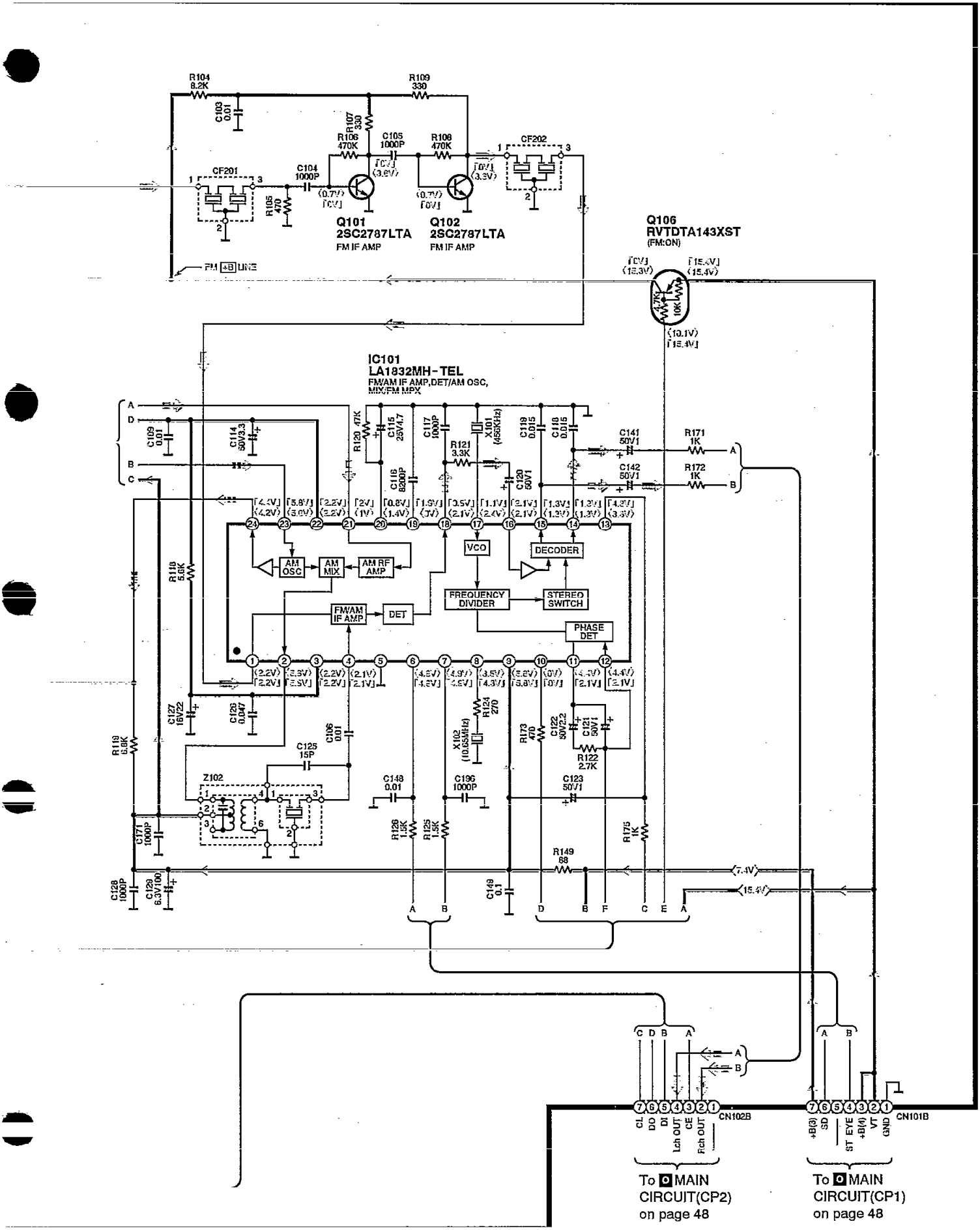


B TUNER CIRCUIT (P.C. Board: on page 66)

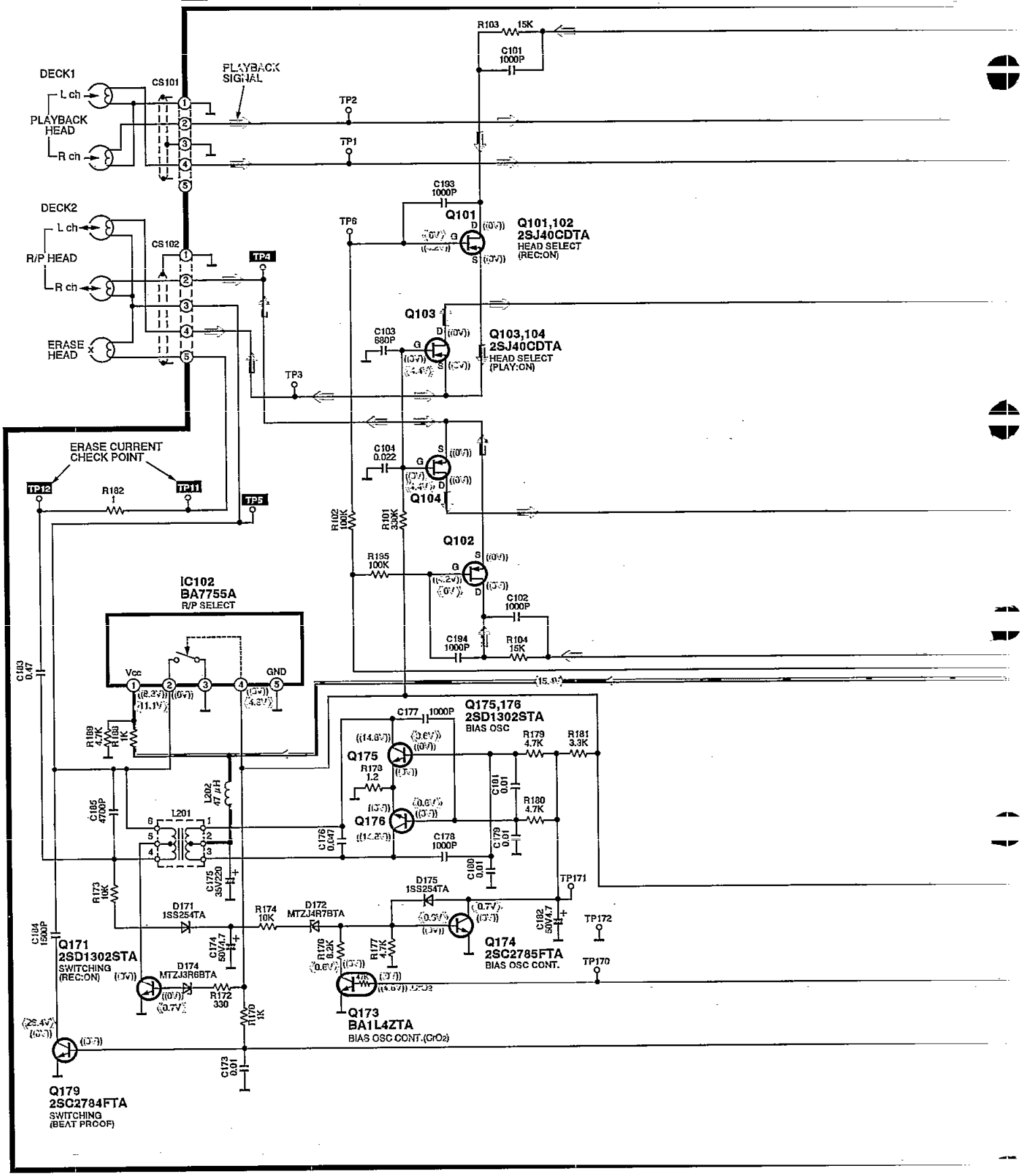
C FM FRONT END CIRCUIT (Z120) (P.C.Board:on page 64)



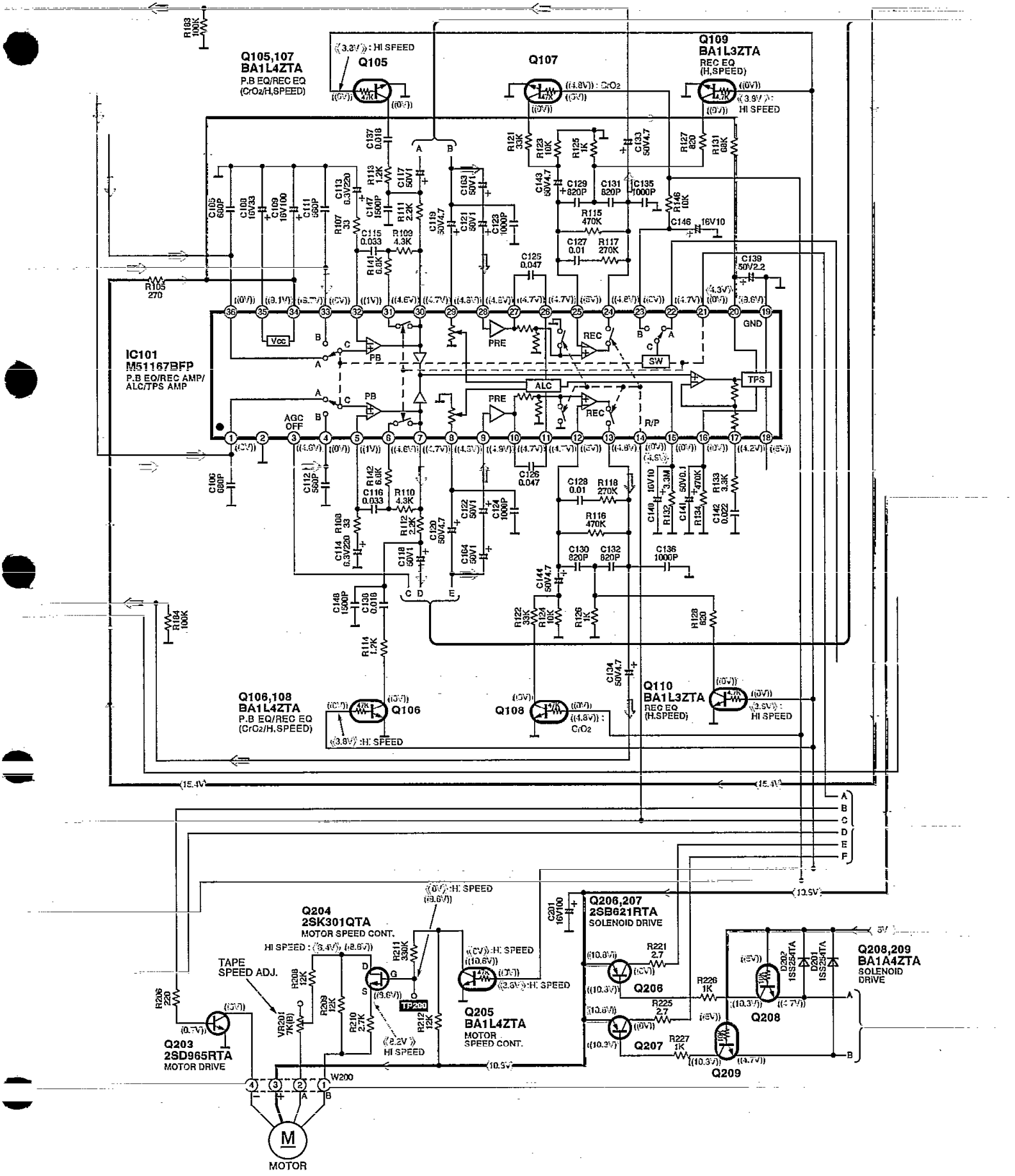
Notes: ⟹: FM signal. ⇨: AM signal. ⇢: AM OSC signal ⇢: FM OSC signal.



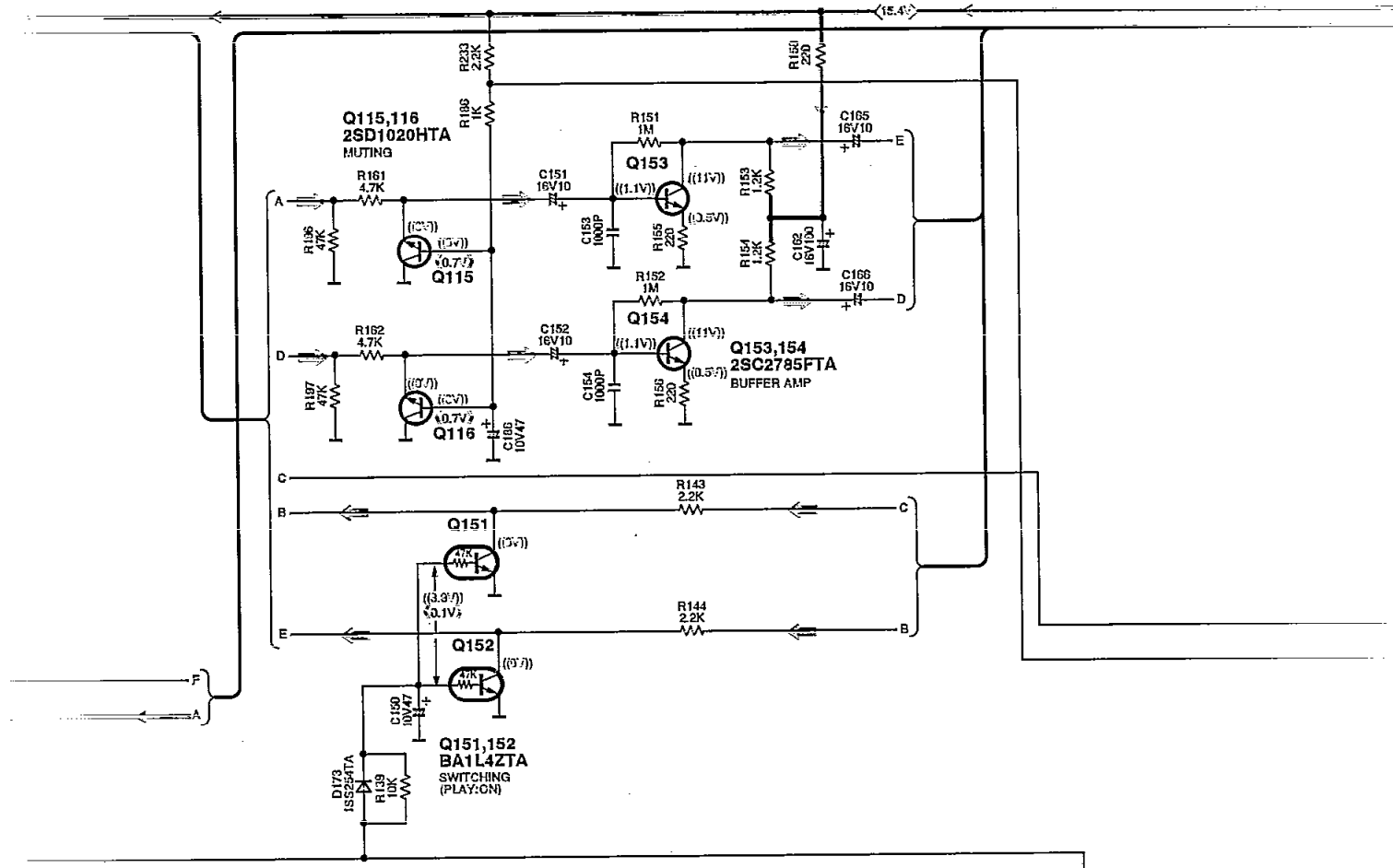
D MECHANISM CONTROL CIRCUIT (P.C.Board:on page 65)

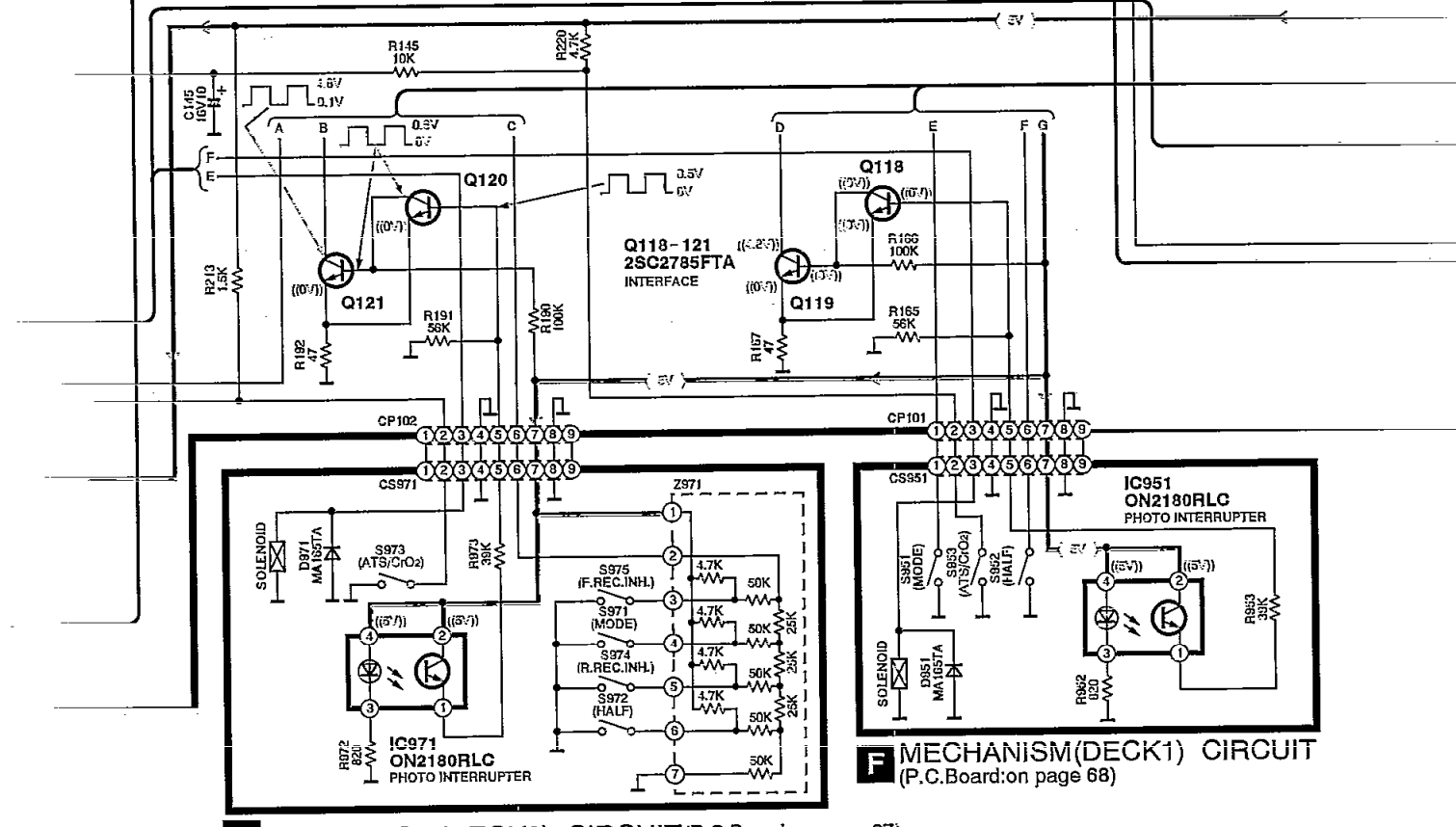


Notes: • ⟹: REC signal. • ⟹: Playback signal.



D MECHANISM CONTROL CIRCUIT (P.C.Board:on page 65)

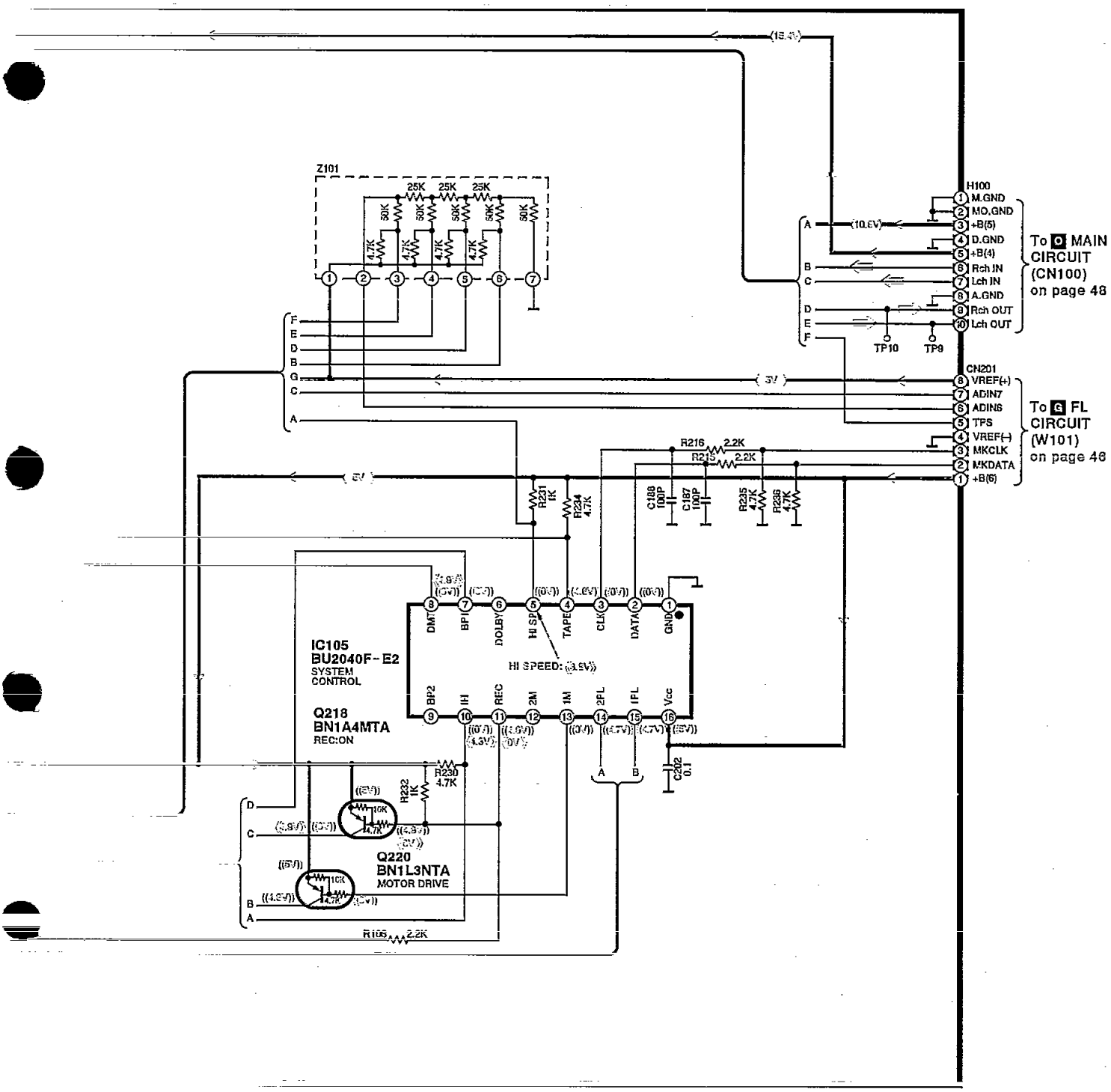




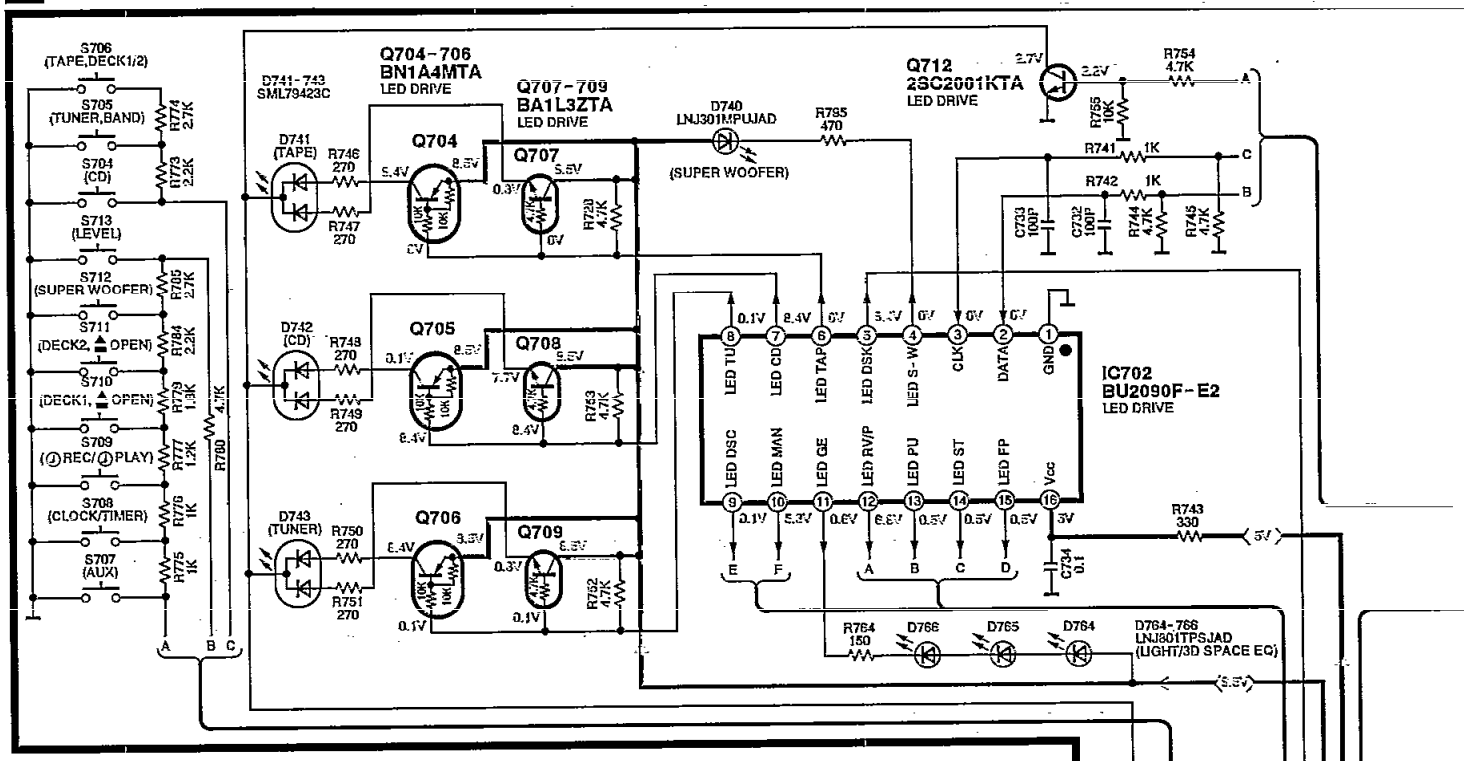
F MECHANISM(DECK1) CIRCUIT (P.C.Board:on page 68)

E MECHANISM(DECK2) CIRCUIT (P.C.Board:on page 67)

Notes: ● ⟹: REC signal. ● ⟹: Playback signal.

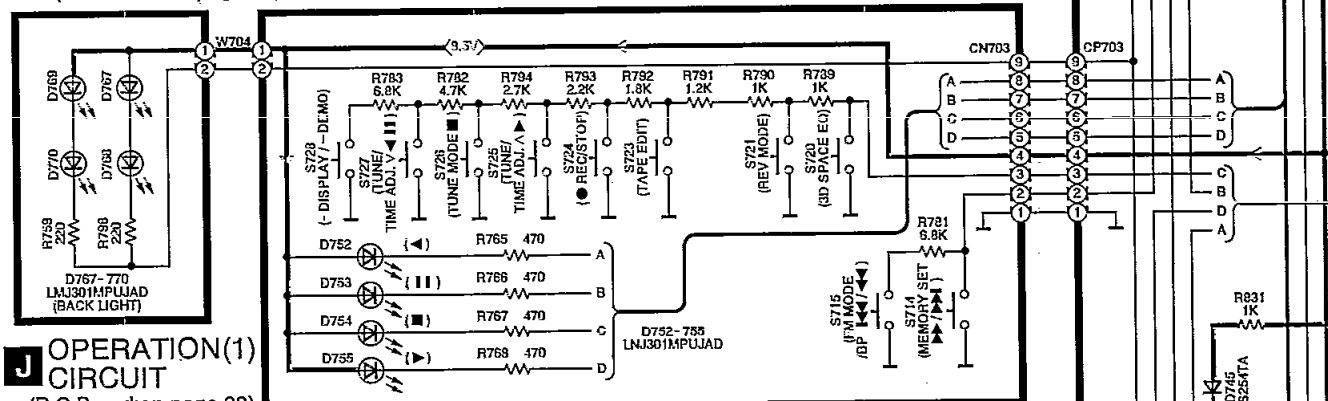


G FL CIRCUIT (P.C.Board:on page 66)

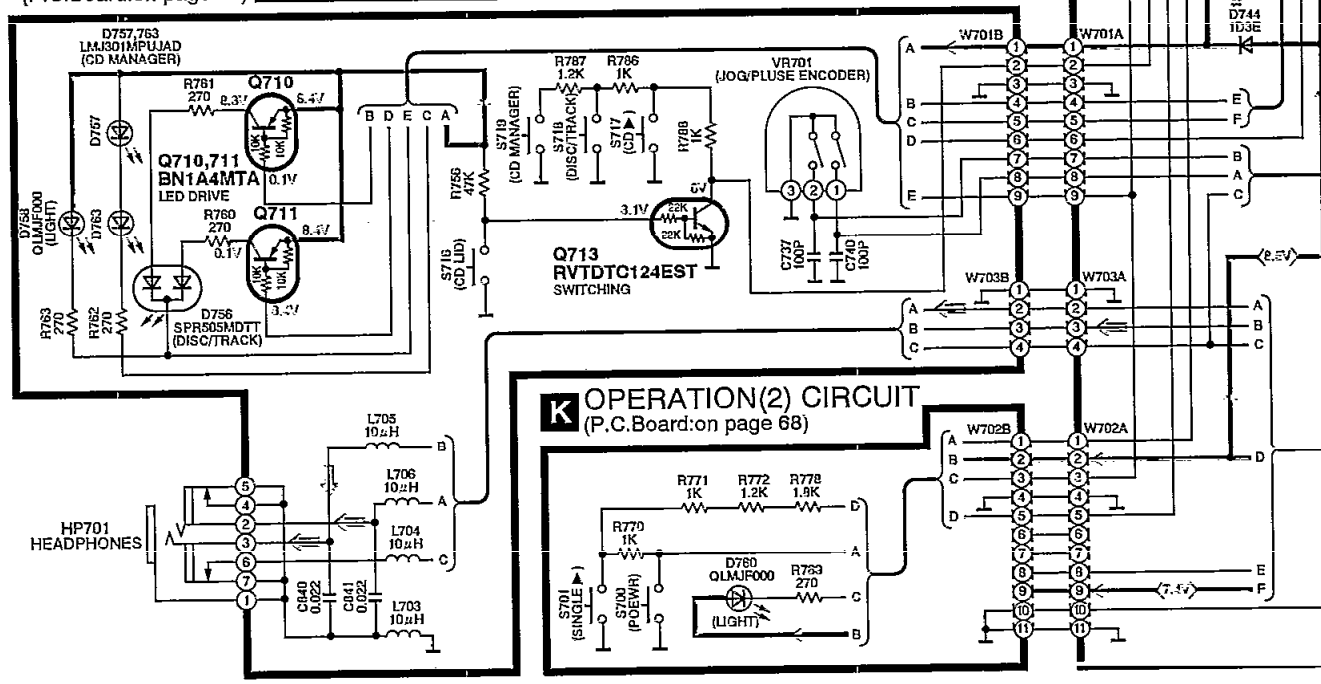


H LED CIRCUIT (P.C.Board:on page 67)

I OPERATION(3) CIRCUIT (P.C.Board:on page 67)

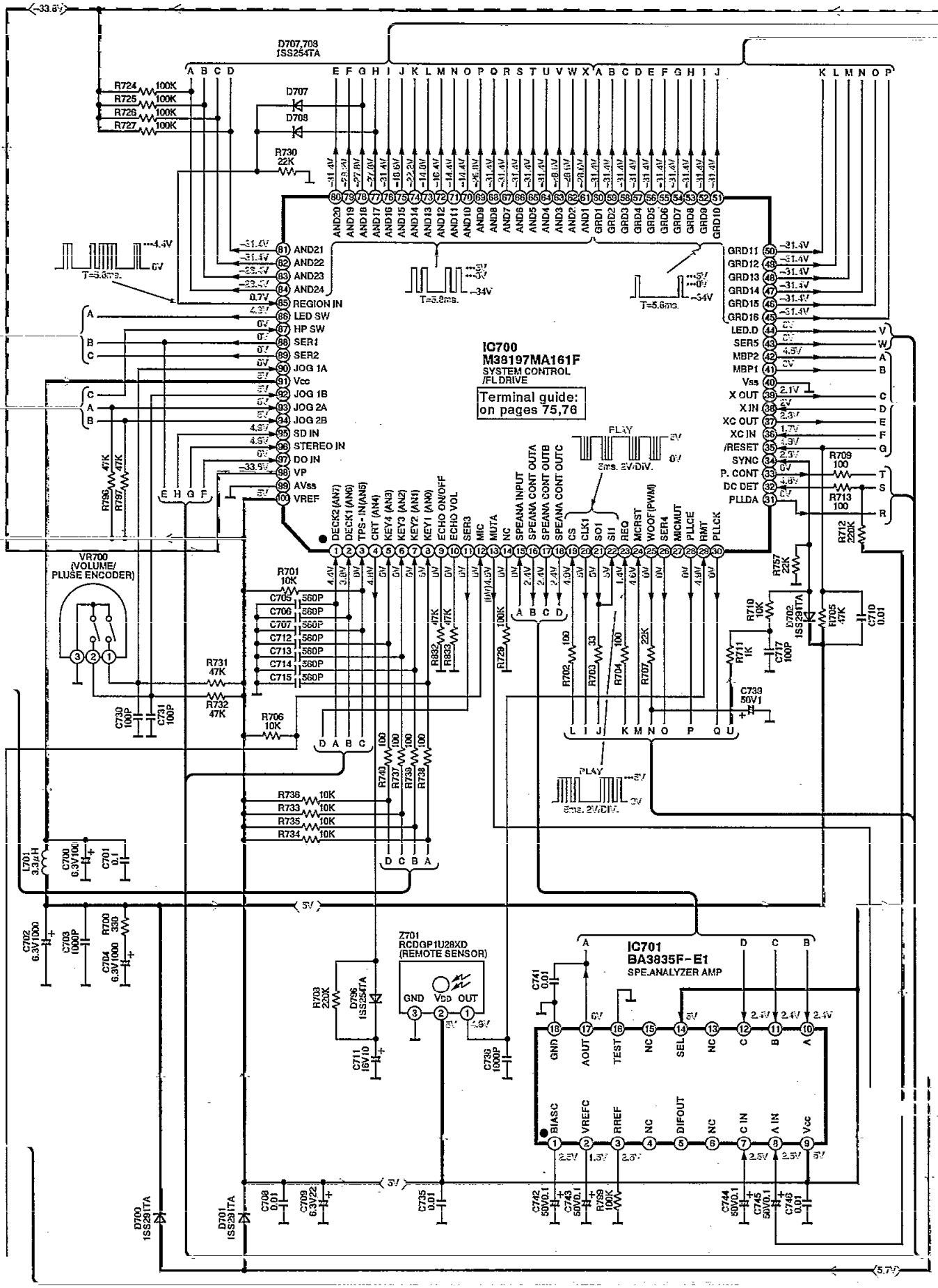


J OPERATION(1) CIRCUIT (P.C.Board:on page 68)

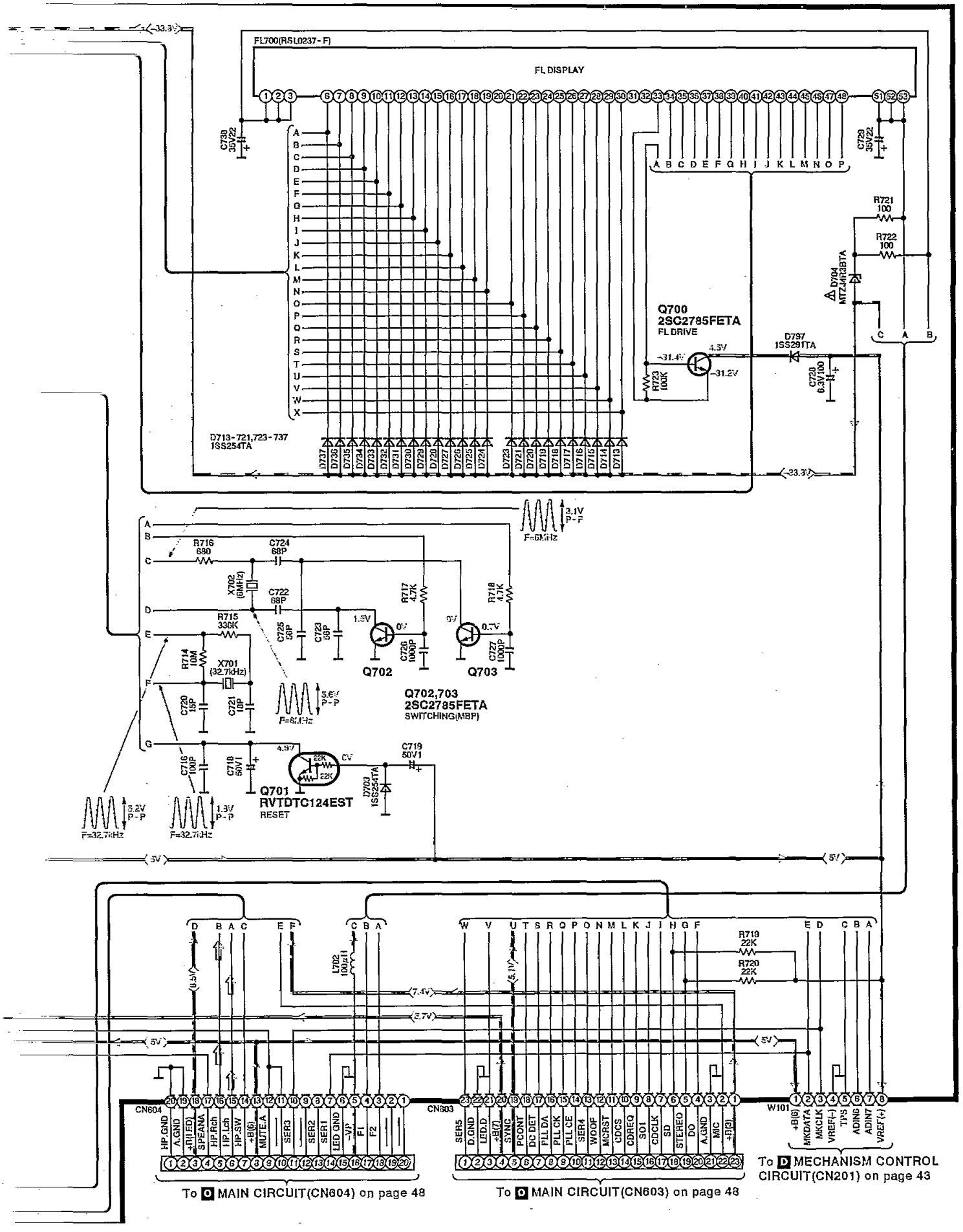


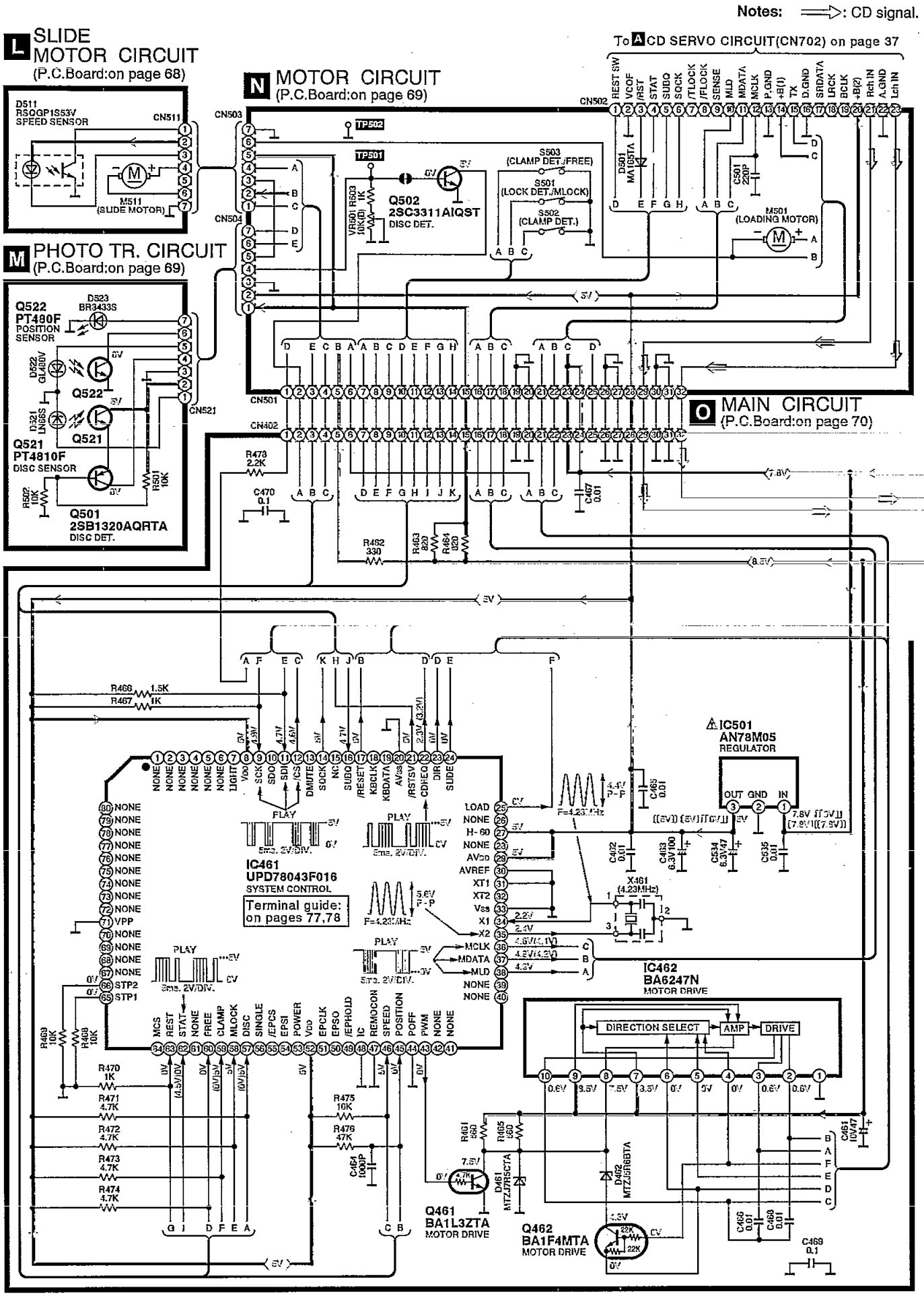
K OPERATION(2) CIRCUIT (P.C.Board:on page 68)

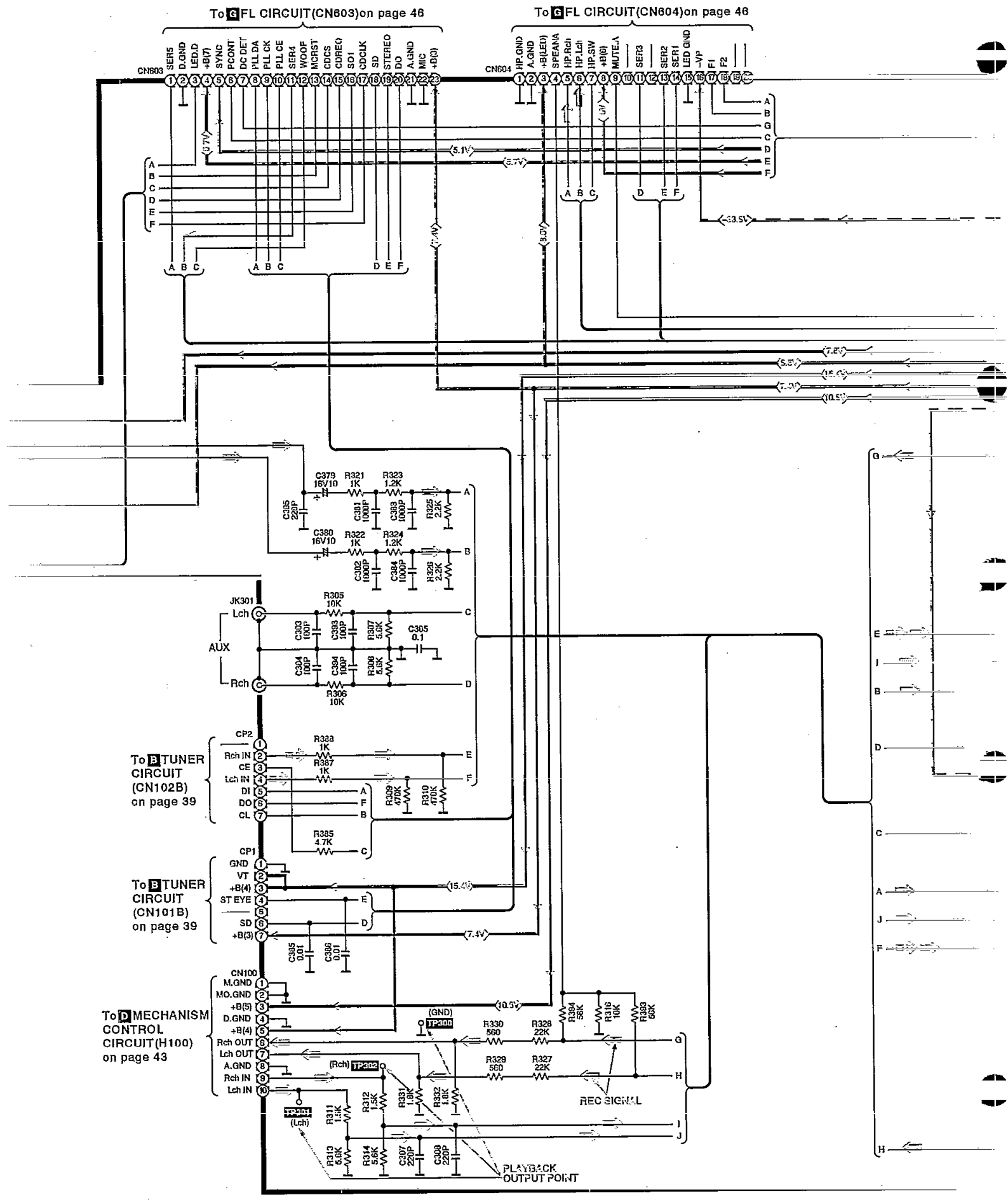
Notes: • ⟹: CD signal.



G FL CIRCUIT (P.C.Board:on page 66)




Notes: ⟹: CD signal.
L SLIDE MOTOR CIRCUIT
(P.C.Board:on page 68)
D511 RSOGP1S53V SPEED SENSOR
CN511
M511 (SLIDE MOTOR)
M PHOTO TR. CIRCUIT
(P.C.Board:on page 69)
Q522 PT480F POSITION SENSOR
D523 BR3433S
D522 GL480V
Q522
D521 LN66S
Q521
Q521 PT4810F DISC SENSOR
R501 10K
R502 10K
Q501 2SB1320AQRTA DISC DET.
CN521
N MOTOR CIRCUIT
(P.C.Board:on page 69)
CN503
CN504
CN501
CN402
TP502
TP501
VR501 R503 10K(B) 1K
Q502 2SC3311AIQST DISC DET.
S503 (CLAMP DET./FREE)
S501 (LOCK DET./MLOCK)
S502 (CLAMP DET.)
To A CD SERVO CIRCUIT(CN702) on page 37
CN502
REST SW
VCOF
/RST
STAT
SUDQ
SQCK
/TLOCK
/FLOCK
SENSE
MLD
MDATA
MCLK
P.GND
+B(1)
TX
D.GND
SRDATA
LRCK
BCLK
+B(2)
Rch IN
A.GND
Lch IN
D301 MA165TA
C501 220P
M501 (LOADING MOTOR)
O MAIN CIRCUIT
(P.C.Board:on page 70)
R473 2.2K
C470 0.1
R462 330
R463 82Ω
R464 82Ω
C467 0.01
R466 1.5K
R467 1K
IC461 UPD78043F016 SYSTEM CONTROL
Terminal guide: on pages 77,78
IC501 AN78M05 REGULATOR
OUT GND IN
C465 0.01
C432 0.01
C433 6.3V100
C534 6.3V47
C535 0.01
X461 (4.23MHz)
IC462 BA6247N MOTOR DRIVE
DIRECTION SELECT
AMP
DRIVE
R469 10K
R468 10K
R470 1K
R471 4.7K
R472 4.7K
R473 4.7K
R474 4.7K
R475 10K
R476 47K
C461 1000P
R491 680
R495 680
D461 MTZJ7R5CTA
D462 MTZJ5R6BTA
Q461 BA1L3ZTA MOTOR DRIVE
Q462 BA1F4MTA MOTOR DRIVE
C461 10V47
C466 0.01
C460 0.01
C469 0.1


To G FL CIRCUIT(CN603)on page 46
To G FL CIRCUIT(CN604)on page 46
CN603
CN604
SER5 D.GND LED.D +B(7) SYNC PCONT DC DET PLL DA PLL CK PLL CE SER4 WOOF MCRST CDCS CDREQ SO1 CDCLK SD STEREO DO A.GND MIC +B(3)
HP.GND A.GND +B(LED) SPEANA HP.Rch HP.Lch HP.SW +B(6) MUTE.A SER3 SER2 SER1 LED GND -VP F1 F2
JK301
Lch
AUX
Rch
To B TUNER CIRCUIT (CN102B) on page 39
To B TUNER CIRCUIT (CN101B) on page 39
To D MECHANISM CONTROL CIRCUIT(H100) on page 43
CP2
CP1
CN100
Rch IN
CE
Lch IN
DI
DO
CL
GND
VT
+B(4)
ST EYE
SD
+B(3)
M.GND
MO.GND
+B(5)
D.GND
+B(4)
Rch OUT
Lch OUT
A.GND
Rch IN
Lch IN
(GND) TP2400
(Rch) TP2402
(Lch) TP2401
REC SIGNAL
PLAYBACK OUTPUT POINT

Notes: ● ⇨: CD signal. ● ⇨: FM signal. ● ⇨: Speaker (High) drive signal.
● ⇨: Playback signal. ● ⇨: AM signal. ● ⇨: REC signal.

To Q POWER AMP CIRCUIT(CP503) on page 51

To Q POWER AMP CIRCUIT(CP504) on page 51

Q MAIN CIRCUIT
(P.C.Board:on page 70)

CN503 +B(6) /TUNER -B +B(7) AC PCONT +B(3) SYNC DC DET F1 F2 I/P.SW

CN504 +B(LED) +B(4) +B(1) S.GND Lch OUT Rch OUT H.Lch OUT H.Rch OUT +B(5) GND2 P.GND C.GND

Q514
2SB1238Q
REGULATOR

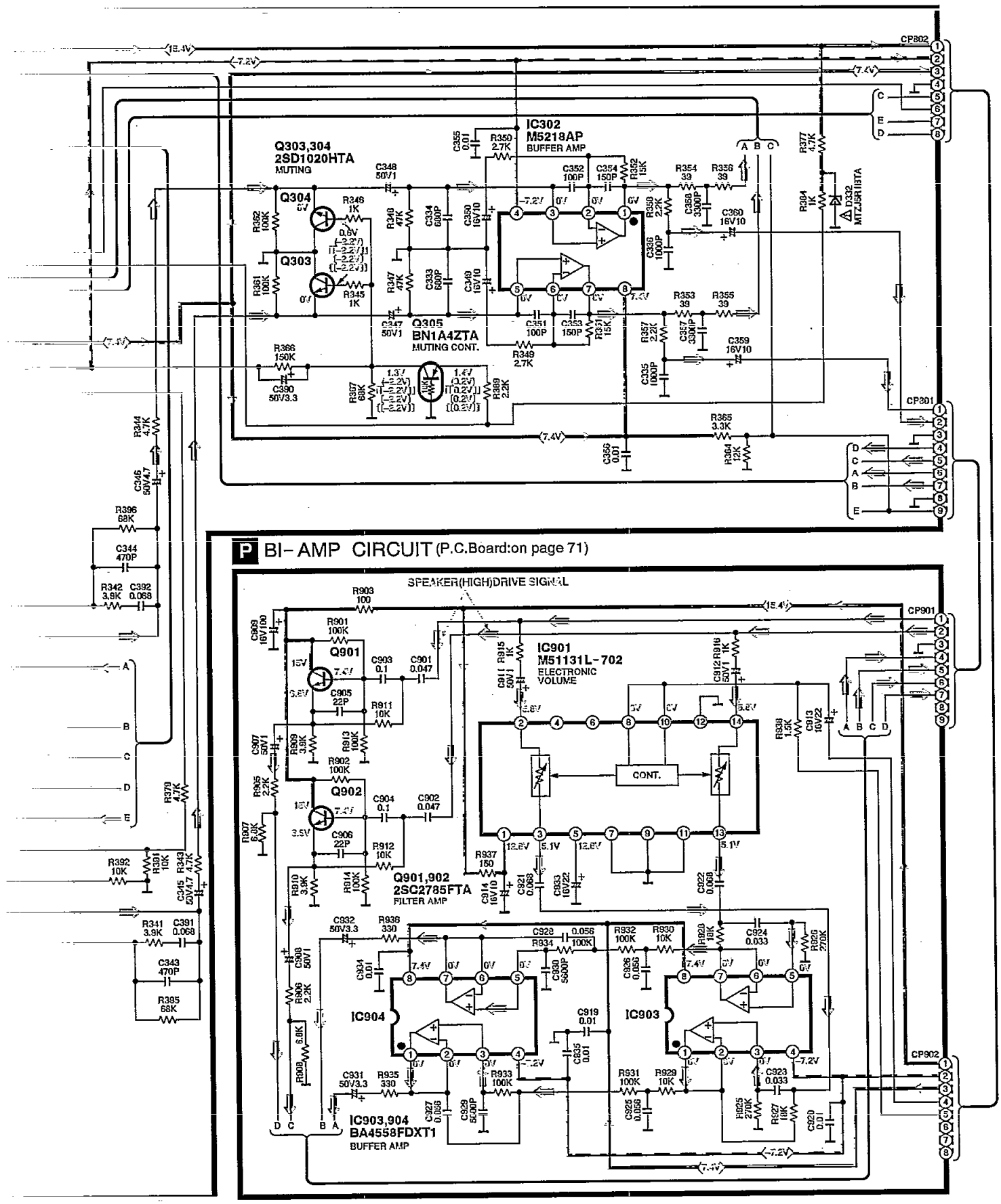
Q515
BA1A4ZTA
POWER DOWN DET.

IC301
M62433FP
DIGITAL SOUND CONTROLLER

GRAPHIC EQUALIZER

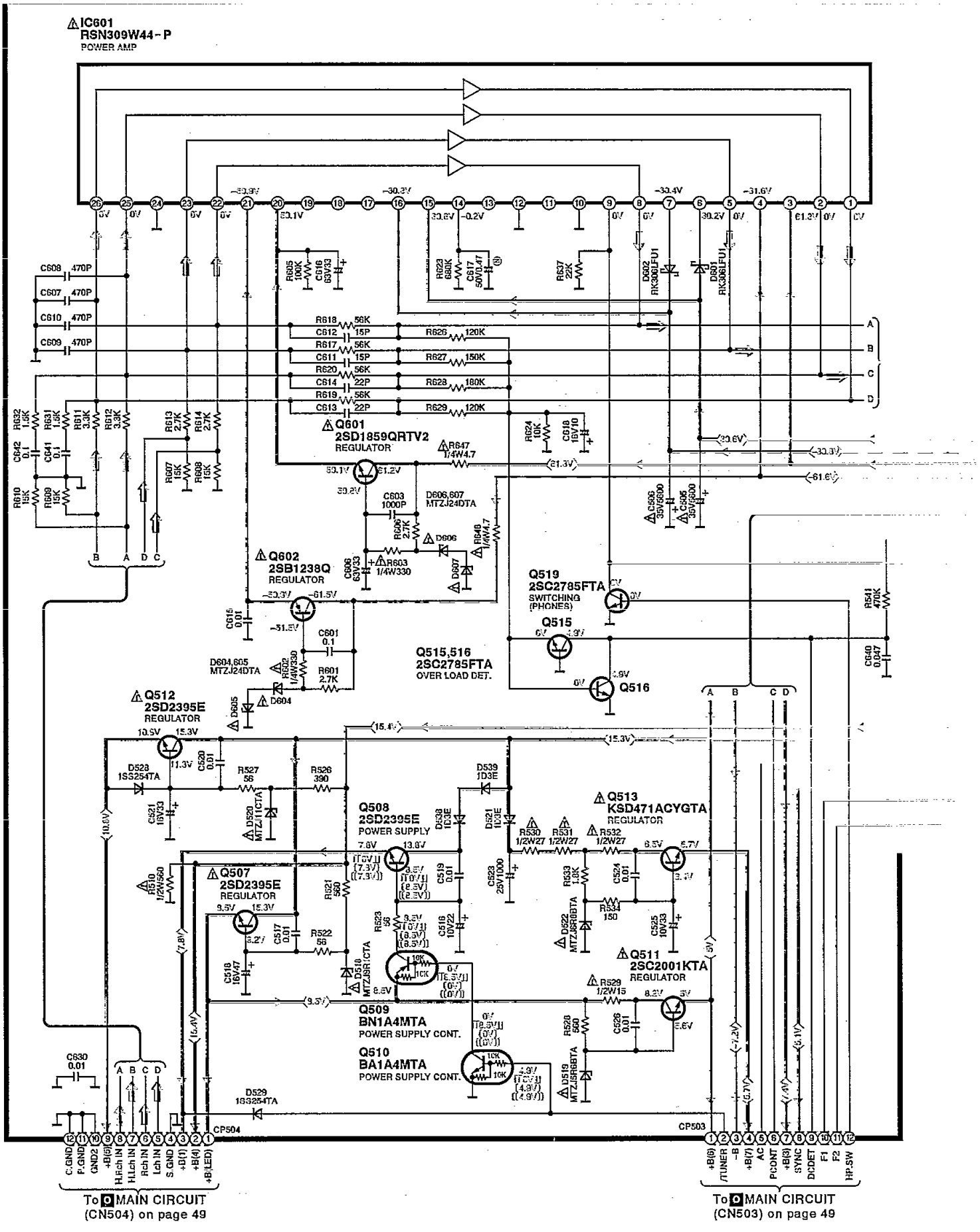
GRAPHIC EQUALIZER

MICRO COMPUTER INTERFACE

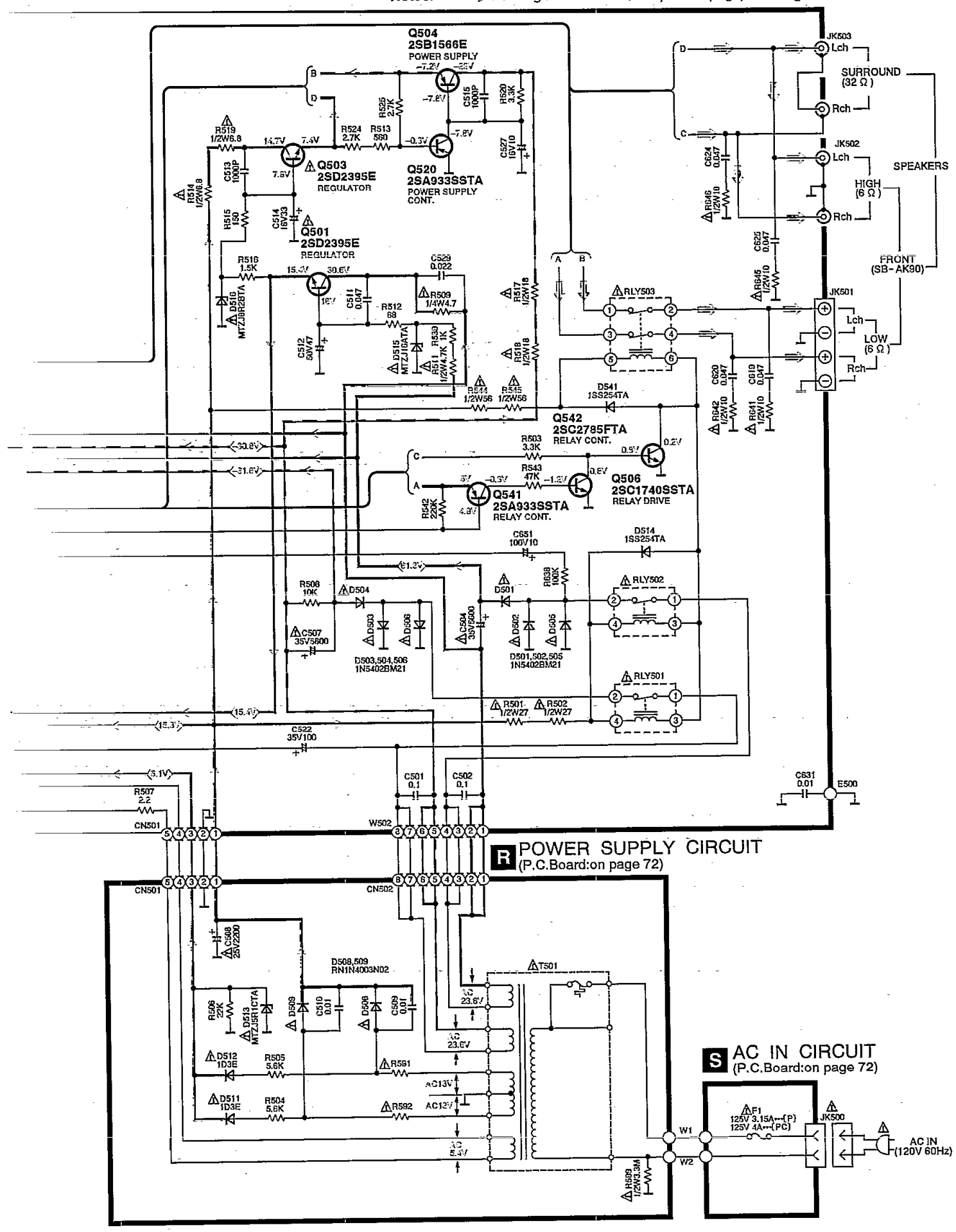

IC302
M5218AP
BUFFER AMP
Q303,304
2SD1020HTA
MUTING
Q305
BN1A4ZTA
MUTING CONT.
CP802
CP801
P BI-AMP CIRCUIT (P.C.Board:on page 71)
SPEAKER(HIGH)DRIVE SIGNAL
IC901
M51131L-702
ELECTRONIC VOLUME
CONT.
Q901
Q902
Q901,902
2SC2785FTA
FILTER AMP
IC904
IC903
IC903,904
BA4558FDXT1
BUFFER AMP
CP901
CP902

Q POWER AMP CIRCUIT (P.C.Board:on page 71)

Notes: ● ⇨: CD signal.
● ⇒: Speaker (High) drive signal.



Notes: ● ⟹: CD signal. ● ⟹: Speaker (High) drive signal.

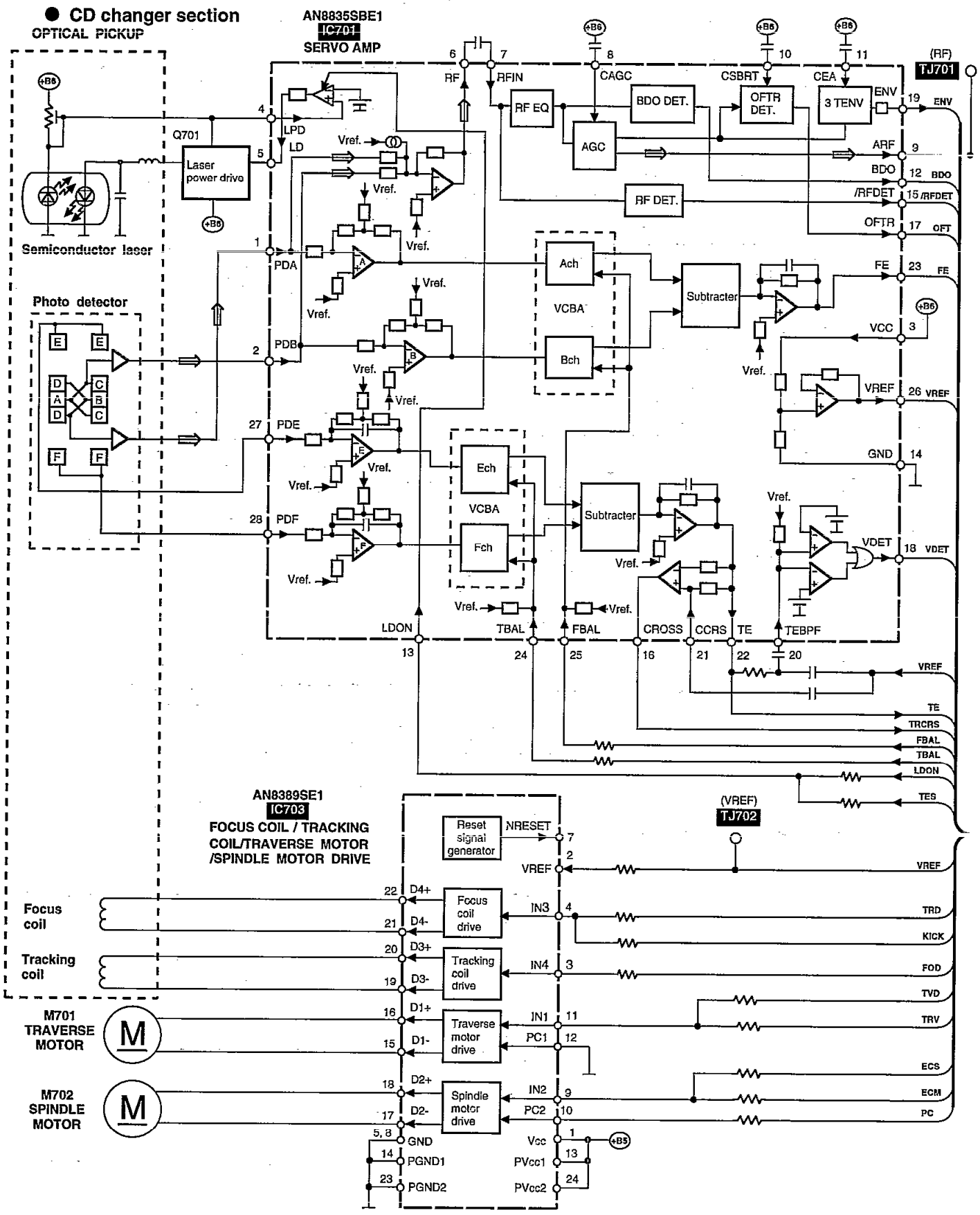


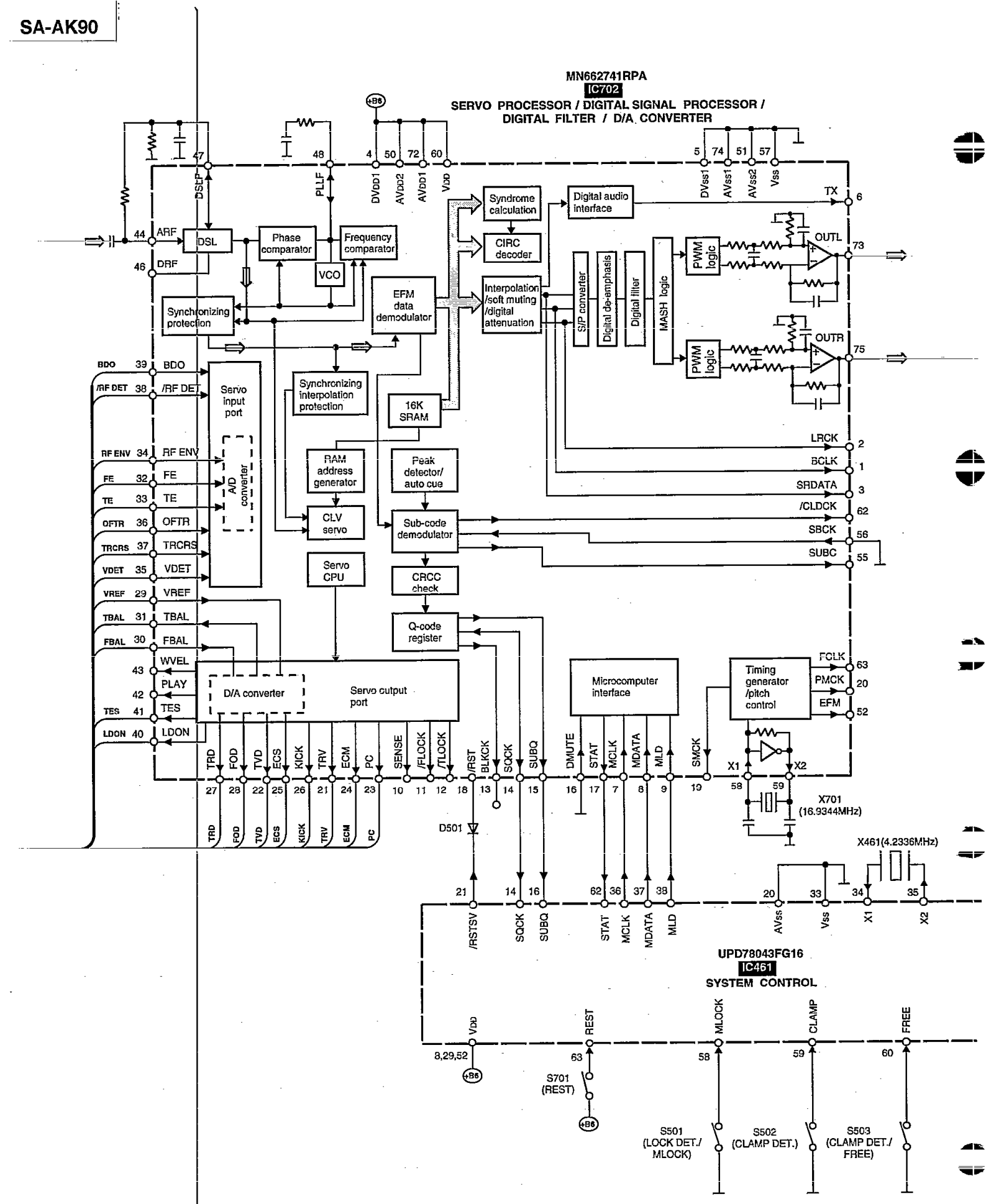
R POWER SUPPLY CIRCUIT
(P.C.Board:on page 72)

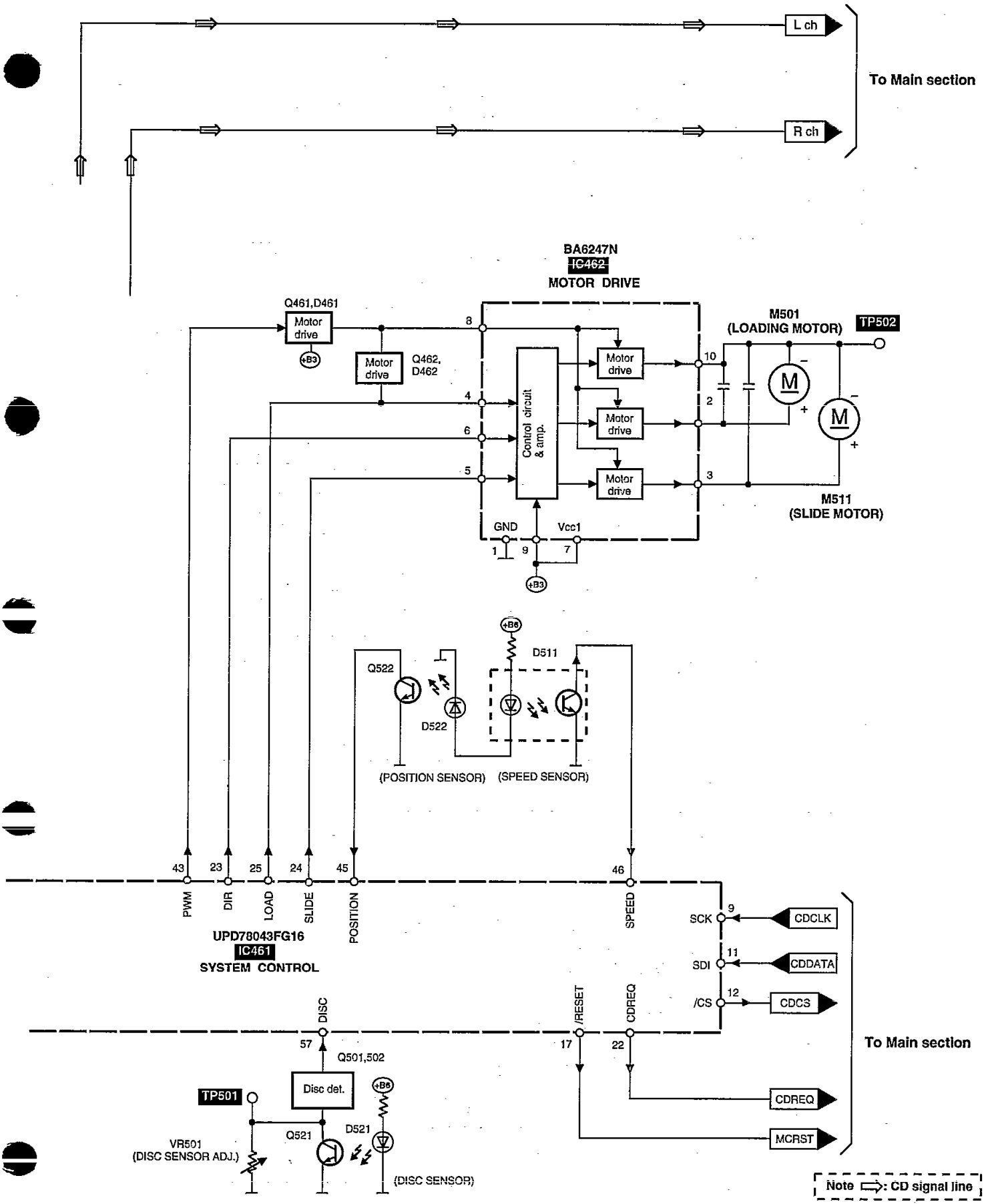
S AC IN CIRCUIT
(P.C.Board:on page 72)

■ Block Diagram

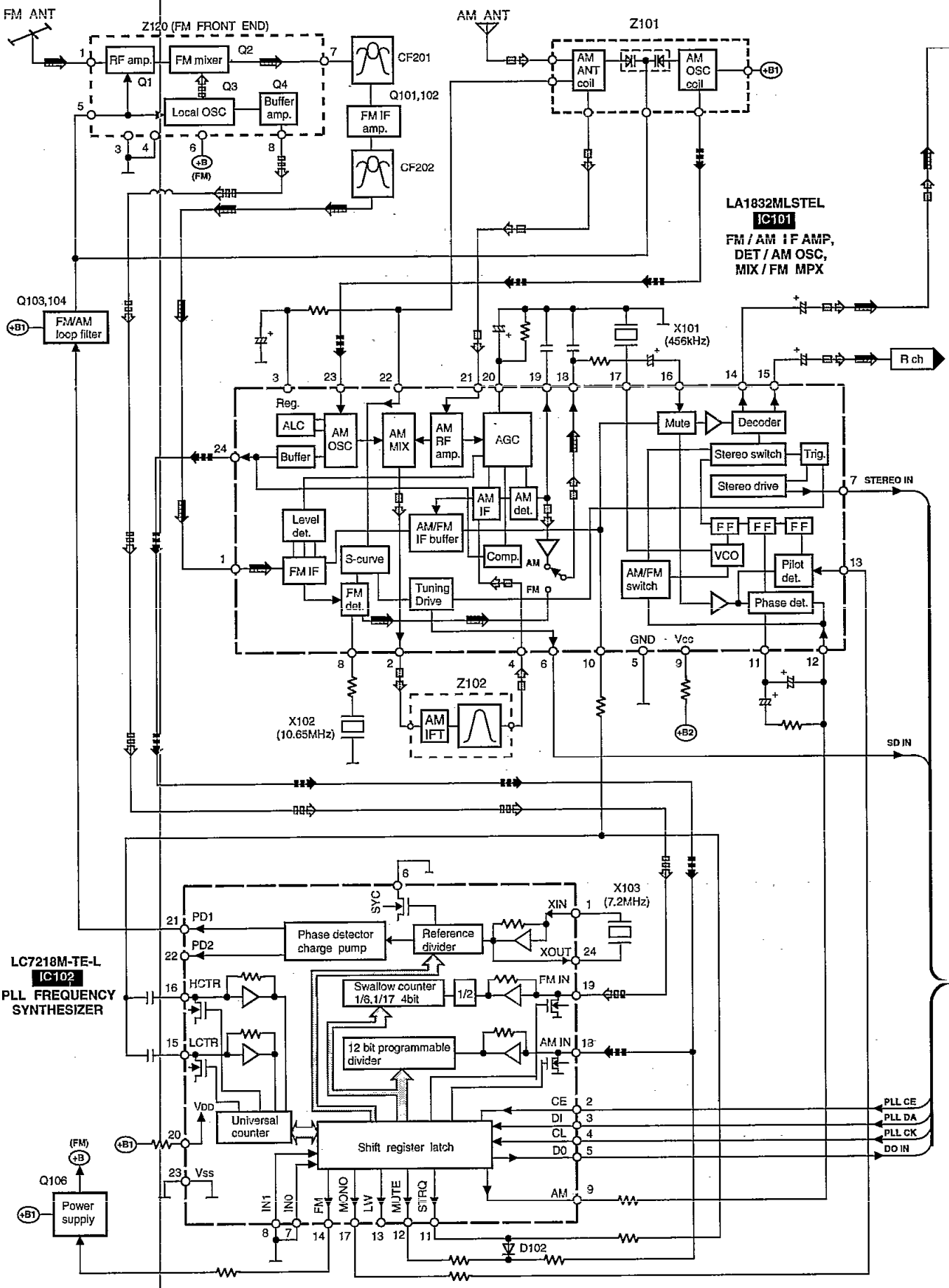
● CD changer section

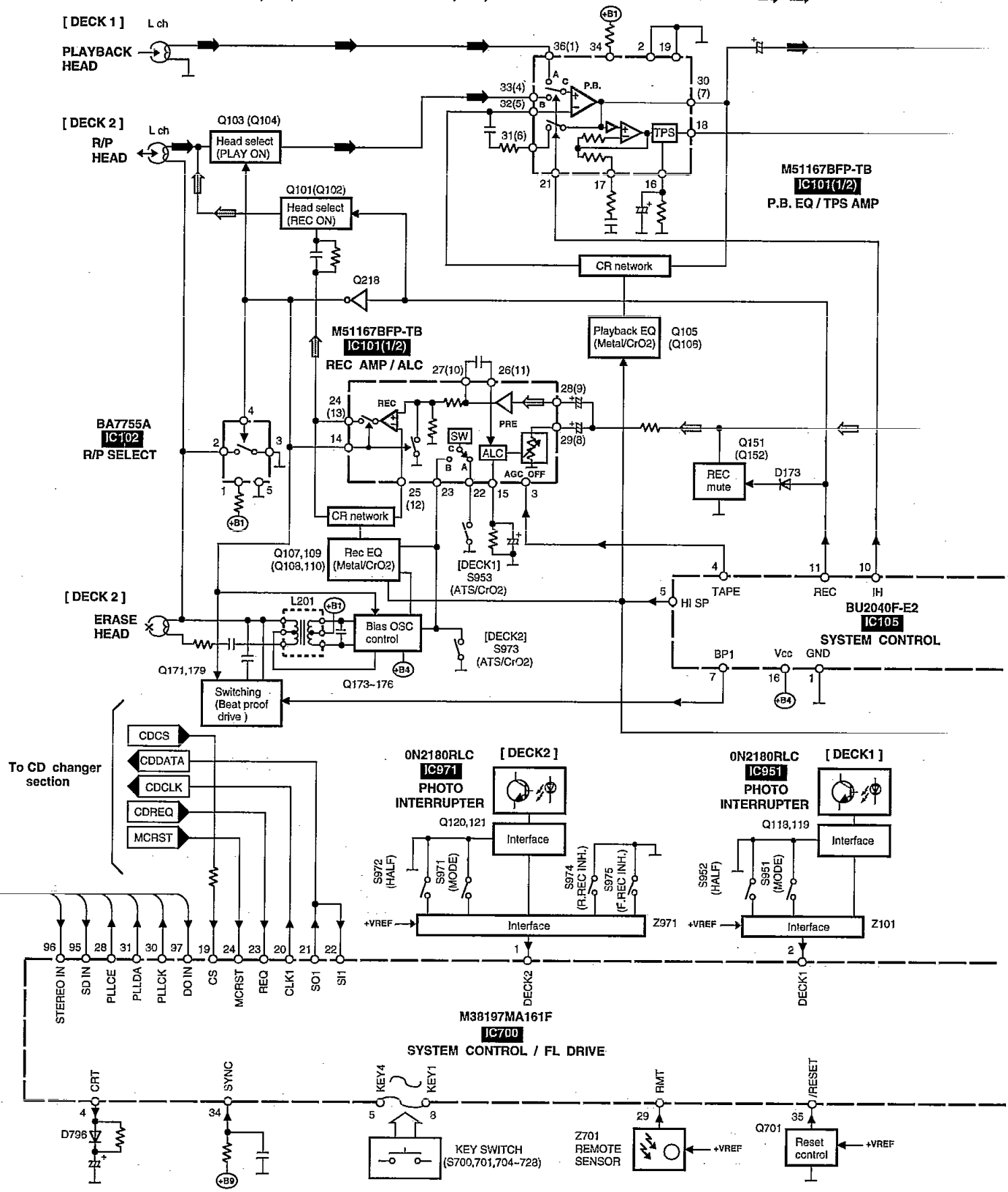


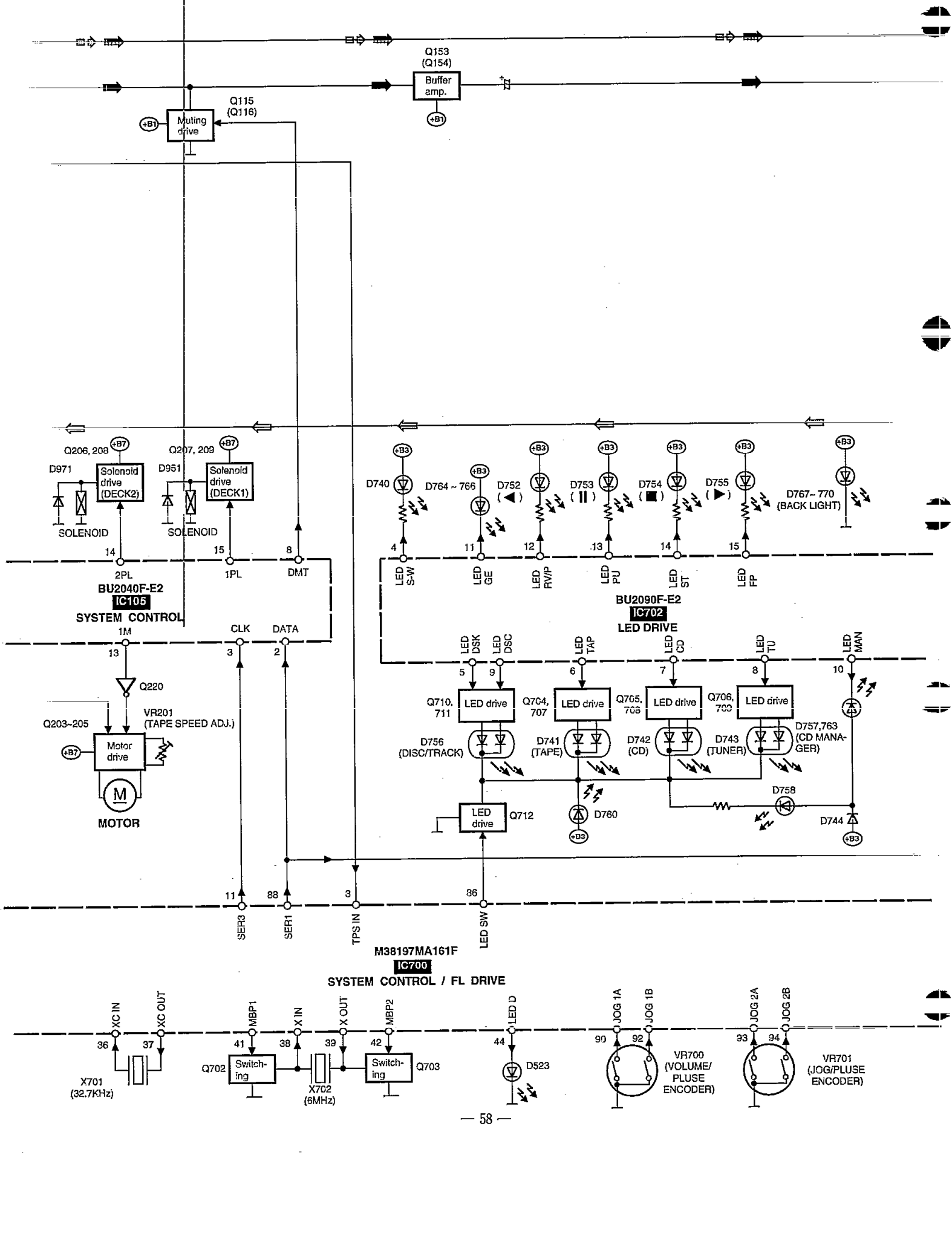

MN662741RPA
IC702
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR /
DIGITAL FILTER / D/A CONVERTER
+B6
47
48
4
50
72
60
5
74
51
57
DSEP
PLLF
DVDD1
AVDD2
AVDD1
VDD
DVSS1
AVSS1
AVSS2
VSS
44
ARF
DSL
Phase comparator
Frequency comparator
VCO
46
DRF
Synchronizing protection
EFM data demodulator
Syndrome calculation
CIRC decoder
Interpolation /soft muting /digital attenuation
Digital audio interface
S/P converter
Digital de-emphasis
Digital filter
MASH logic
PWM logic
PWM logic
TX
6
OUTL
73
OUTR
75
BDO 39
BDO
/RF DET 38
/RF DET
Servo input port
A/D converter
Synchronizing interpolation protection
16K SRAM
RF ENV 34
RF ENV
FE 32
FE
TE 33
TE
OFTR 36
OFTR
TRCRS 37
TRCRS
VDET 35
VDET
VREF 29
VREF
TBAL 31
TBAL
FBAL 30
FBAL
RAM address generator
CLV servo
Peak detector/ auto cue
Sub-code demodulator
CRCC check
Servo CPU
Q-code register
LRCK
2
BCLK
1
SRDATA
3
/CLDCK
62
SBCK
56
SUBC
55
43
WVEL
42
PLAY
41
TES
40
LDON
LDON
D/A converter
Servo output port
Microcomputer interface
Timing generator /pitch control
FCLK
63
PMCK
20
EFM
52
TRD 27
FOD 28
TVD 22
ECS 25
KICK 26
TRV 21
ECM 24
PC 23
SENSE 10
/FLOCK 11
/TLOCK 12
/RST 18
BLKCK 13
SQCK 14
SUBQ 15
DMUTE 16
STAT 17
MCLK 7
MDATA 8
MLD 9
SMCK 19
X1
X2
58
59
X701
(16.9344MHz)
D501
X461(4.2336MHz)
21
14
16
62
36
37
38
20
33
34
35
/RSTSV
SQCK
SUBQ
STAT
MCLK
MDATA
MLD
AVSS
VSS
X1
X2
UPD78043FG16
IC461
SYSTEM CONTROL
VDD
8,29,52
+B6
REST
63
S701
(REST)
+B6
MLOCK
58
CLAMP
59
FREE
60
S501
(LOCK DET./
MLOCK)
S502
(CLAMP DET.)
S503
(CLAMP DET./
FREE)

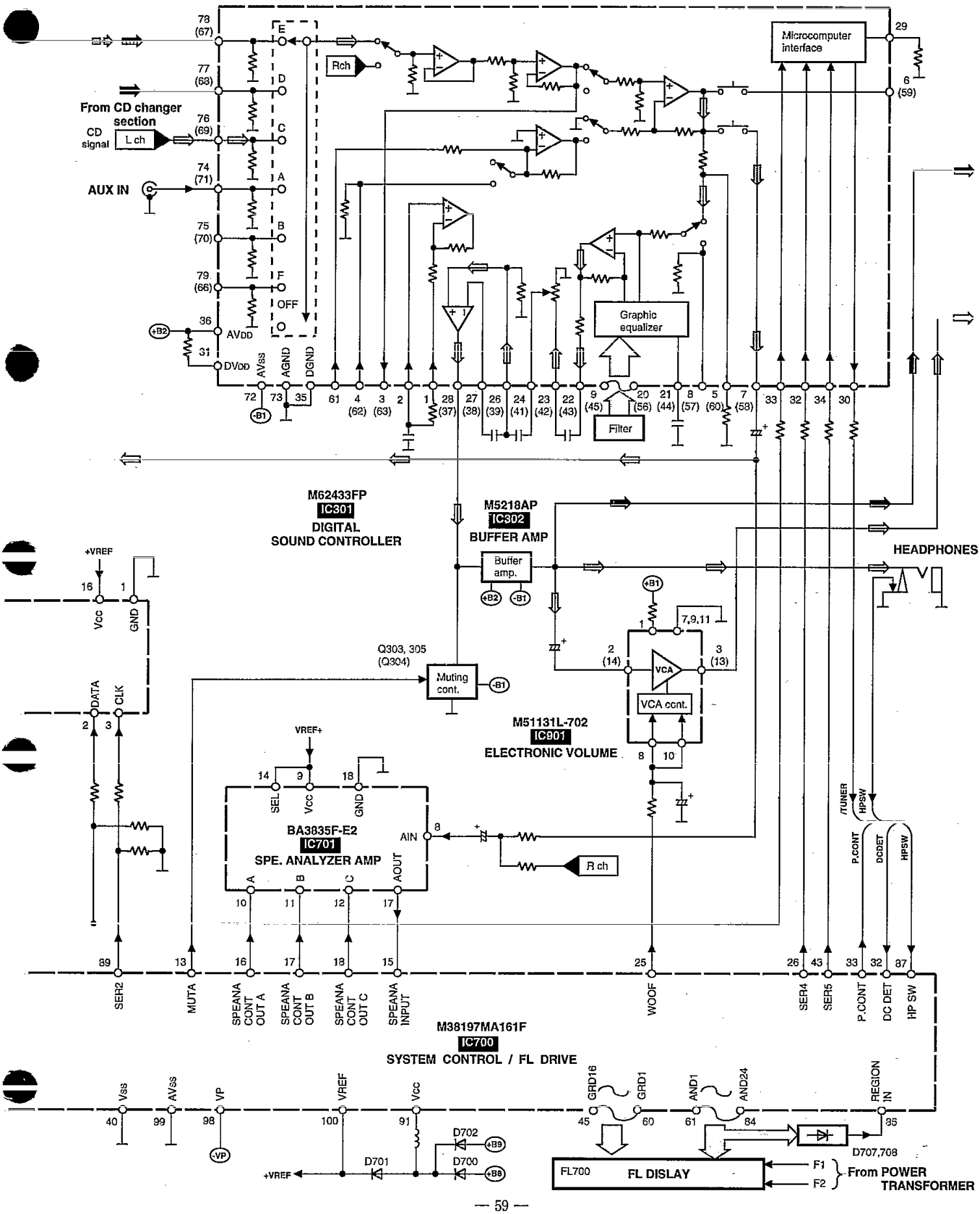

L ch
R ch
To Main section
BA6247N
IC462
MOTOR DRIVE
Q461,D461
Motor drive
+B3
Q462, D462
8
4
6
5
Control circuit & amp.
10
2
3
M501
(LOADING MOTOR)
TP502
M511
(SLIDE MOTOR)
GND
Vcc1
1
9
7
+B6
D511
Q522
D522
(POSITION SENSOR)
(SPEED SENSOR)
43
23
25
24
45
46
PWM
DIR
LOAD
SLIDE
POSITION
SPEED
UPD78043FG16
IC461
SYSTEM CONTROL
SCK
SDI
/CS
9
11
12
CDCLK
CDDATA
CDCS
DISC
/RESET
CDREQ
57
17
22
Q501,502
Disc det.
TP501
VR501
(DISC SENSOR ADJ.)
Q521
D521
(DISC SENSOR)
CDREQ
MCRST
To Main section
Note ⇨: CD signal line

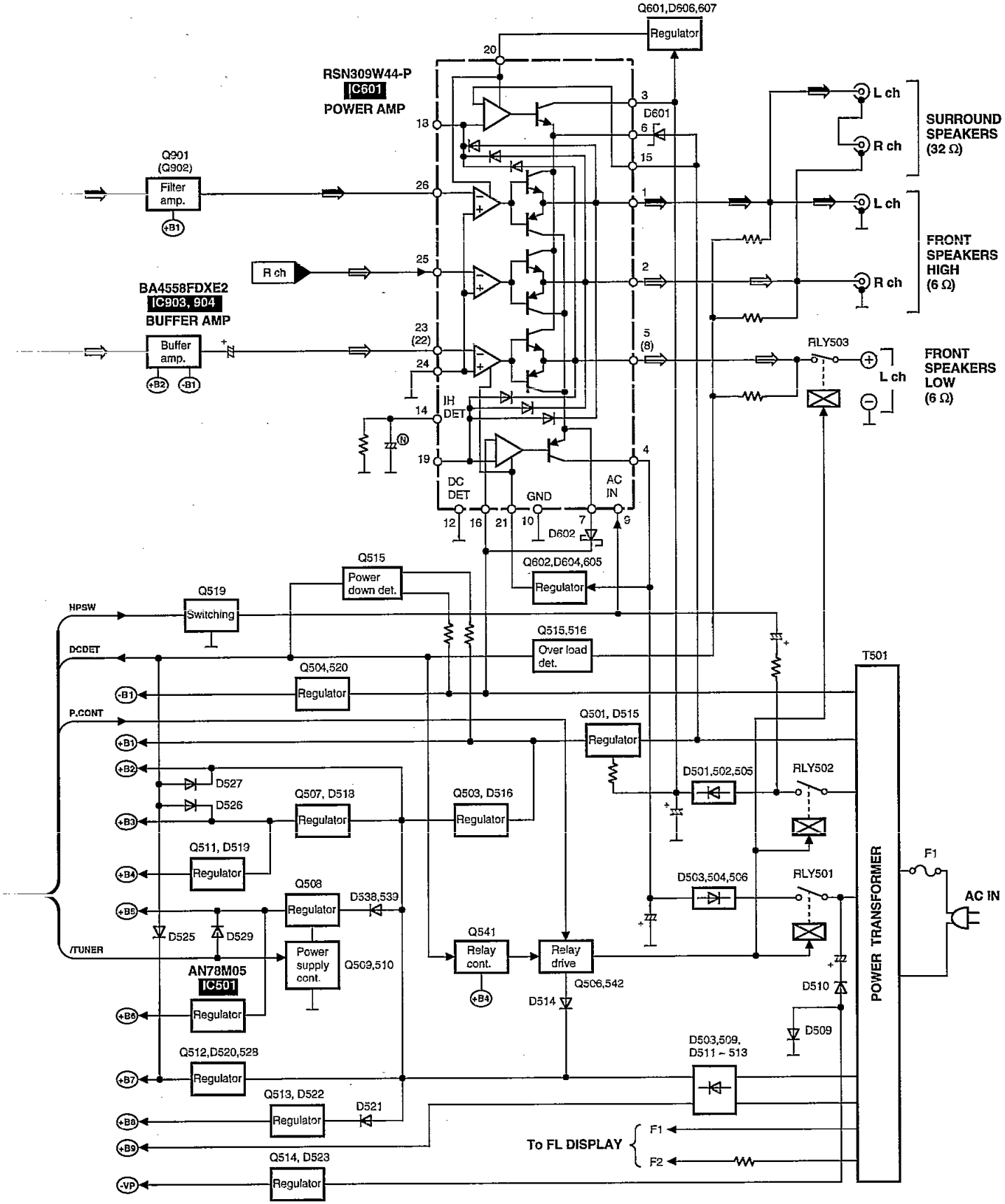
● Main section




[DECK 1]
L ch
PLAYBACK HEAD
[DECK 2]
L ch
R/P HEAD
Q103 (Q104)
Head select (PLAY ON)
Q101(Q102)
Head select (REC ON)
Q218
M51167BFP-TB
IC101(1/2)
P.B. EQ / TPS AMP
P.B.
TPS
CR network
M51167BFP-TB
IC101(1/2)
REC AMP / ALC
REC
PRE
SW
ALC
AGC OFF
Playback EQ (Metal/CrO2)
Q105 (Q106)
BA7755A
IC102
R/P SELECT
Q151 (Q152)
REC mute
D173
CR network
Q107,109 (Q108,110)
Rec EQ (Metal/CrO2)
[DECK1] S953 (ATS/CrO2)
[DECK 2]
ERASE HEAD
L201
Bias OSC control
[DECK2] S973 (ATS/CrO2)
Q171,179
Q173~176
Switching (Beat proof drive)
TAPE
HI SP
REC
IH
BU2040F-E2
IC105
SYSTEM CONTROL
BP1
Vcc
GND
To CD changer section
CDCS
CDDATA
CDCLK
CDREQ
MCRST
0N2180RLC
IC971
PHOTO INTERRUPTER
[DECK2]
Q120,121
Interface
S972 (HALF)
S971 (MODE)
S974 (R.REC INH.)
S975 (F.REC INH.)
+VREF
Z971
0N2180RLC
IC951
PHOTO INTERRUPTER
[DECK1]
Q118,119
Interface
S962 (HALF)
S951 (MODE)
Z101
STEREO IN
SD IN
PLLCE
PLLDA
PLLCK
DO IN
CS
MCRST
REQ
CLK1
SO1
SI1
DECK2
DECK1
M38197MA161F
IC700
SYSTEM CONTROL / FL DRIVE
CRT
SYNC
KEY4
KEY1
RMT
/RESET
D796
KEY SWITCH (S700,701,704~723)
Z701 REMOTE SENSOR
Q701
Reset control
+B1
+B4
+B9


Q153
(Q154)
Buffer amp.
+B1
Q115
(Q116)
Muting drive
+B1
Q206, 208
+B7
D971
Solenoid drive (DECK2)
SOLENOID
Q207, 209
+B7
D951
Solenoid drive (DECK1)
SOLENOID
14
2PL
15
1PL
8
DMT
BU2040F-E2
IC105
SYSTEM CONTROL
1M
13
CLK
3
DATA
2
Q220
VR201
(TAPE SPEED ADJ.)
Q203~205
+B7
Motor drive
M
MOTOR
D740
D764 ~ 766
D752 (◀)
D753 (❚❚)
D754 (■)
D755 (▶)
D767~ 770
(BACK LIGHT)
+B3
4
LED S-W
11
LED GE
12
LED RV/IP
13
LED PU
14
LED ST
15
LED FP
BU2090F-E2
IC702
LED DRIVE
LED DSK
LED DSC
LED TAP
LED CD
LED TU
LED MAN
5
9
6
7
8
10
Q710, 711
Q704, 707
Q705, 708
Q706, 709
LED drive
D756 (DISC/TRACK)
D741 (TAPE)
D742 (CD)
D743 (TUNER)
D757,763 (CD MANAGER)
D758
D744
Q712
D760
11
SER3
88
SER1
3
TPS IN
86
LED SW
M38197MA161F
IC700
SYSTEM CONTROL / FL DRIVE
XC IN
XC OUT
MBP1
X IN
X OUT
MBP2
LED D
JOG 1A
JOG 1B
JOG 2A
JOG 2B
36
37
41
38
39
42
44
90
92
93
94
X701
(32.7KHz)
Q702
Switching
X702
(6MHz)
Switching
Q703
D523
VR700
(VOLUME/
PLUSE
ENCODER)
VR701
(JOG/PLUSE
ENCODER)


From CD changer section
CD signal
L ch
AUX IN
Rch
Microcomputer interface
Graphic equalizer
Filter
AVDD
DVDD
AVSS
AGND
DGND
OFF
M62433FP
IC301
DIGITAL SOUND CONTROLLER
M5218AP
IC302
BUFFER AMP
Buffer amp.
HEADPHONES
+VREF
Vcc
GND
DATA
CLK
Q303, 305
(Q304)
Muting cont.
VCA
VCA cont.
M51131L-702
IC901
ELECTRONIC VOLUME
VREF+
SEL
BA3835F-E2
IC701
SPE. ANALYZER AMP
AIN
AOUT
R ch
/TUNER
HPSW
P.CONT
DCDET
SER2
MUTA
SPEANA CONT OUT A
SPEANA CONT OUT B
SPEANA CONT OUT C
SPEANA INPUT
WOOF
SER4
SER5
P.CONT
DC DET
HP SW
M38197MA161F
IC700
SYSTEM CONTROL / FL DRIVE
Vss
AVss
VP
VREF
Vcc
GRD16
GRD1
AND1
AND24
REGION IN
D702
D701
D700
D707,708
FL700
FL DISLAY
F1
F2
From POWER TRANSFORMER

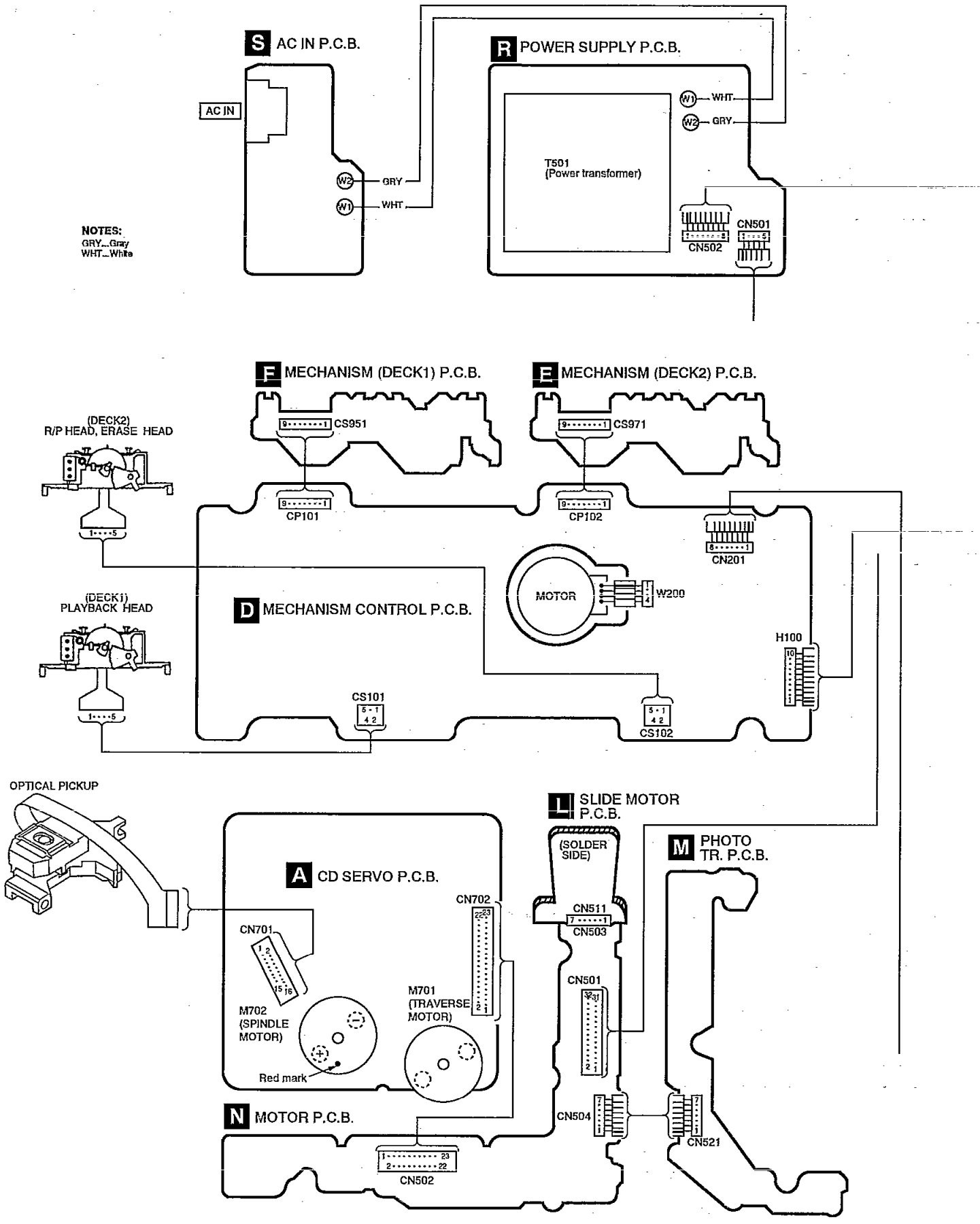


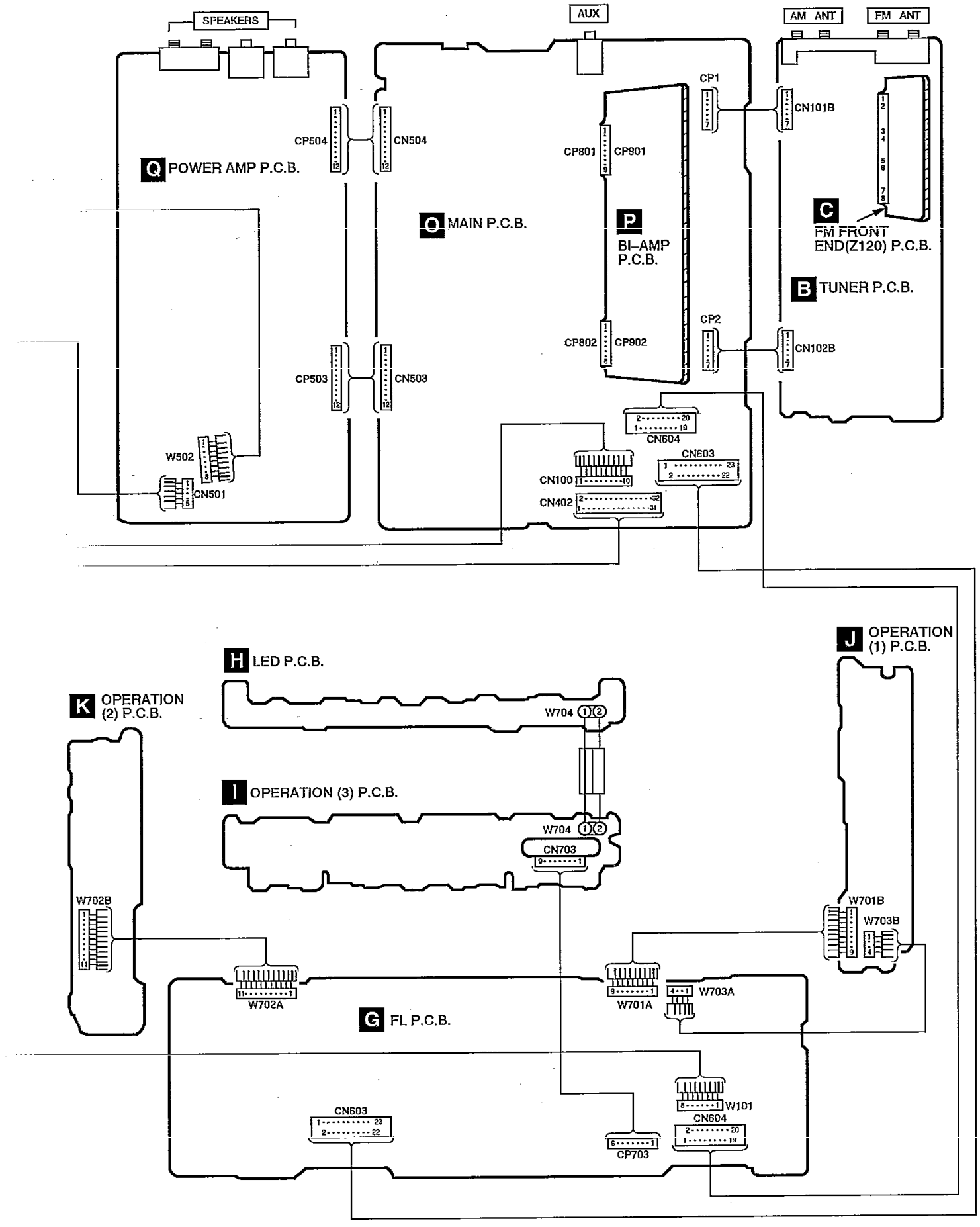
Notes

1) ⇨: CD signal line ➡: FM signal line ⇨: FM OSC signal line ⇨: AM signal line ➡: AM OSC signal line
➡: Playback signal line ⇨: REC signal line ⇨: Speaker (High) drive signal line

2) ( ) indicates pin No. Right channel.

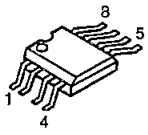
■ Wiring Connection Diagram

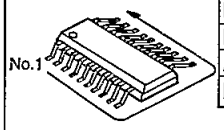



SPEAKERS
AUX
AM ANT
FM ANT
CP504
CN504
Q POWER AMP P.C.B.
Q MAIN P.C.B.
CP801
CP901
CP1
CN101B
P
BI-AMP
P.C.B.
C
FM FRONT
END(Z120) P.C.B.
B TUNER P.C.B.
CP802
CP902
CP2
CN102B
CP503
CN503
W502
CN501
CN604
CN603
CN100
CN402
H LED P.C.B.
W704
K OPERATION
(2) P.C.B.
I OPERATION (3) P.C.B.
W704
CN703
J OPERATION
(1) P.C.B.
W702B
W702A
W701B
W703B
W701A
W703A
G FL P.C.B.
CN603
W101
CN604
CP703

■ Type Illustration of IC's, Toransistors, and Diodes

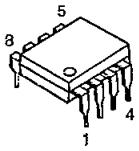
BA4558FDXT1



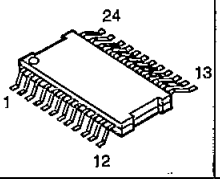


BU2040F-E2	16PIN
BU2090F-E2	16PIN
BA3835F-E1	18PIN
LA1832MH-TEL	24PIN
LC7218M-TE-L	24PIN
AN8835SBE1	28PIN
M51167BFP	36PIN

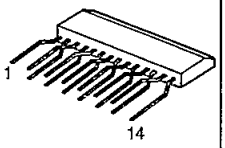
M5218AP



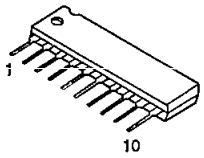
AN8389SE1



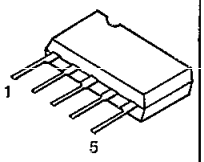
M51131L-702



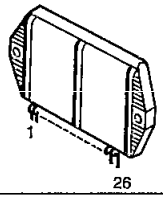
BA6247N



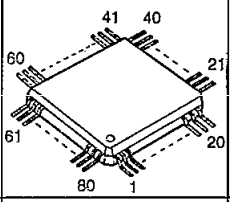
BA7755A

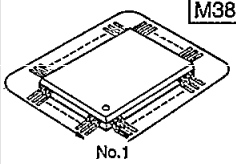


RSN309W44-P



MN662741RPA





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M38197MA161F	100PIN

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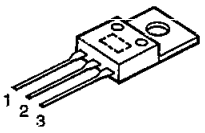

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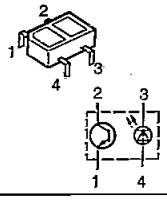

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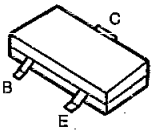

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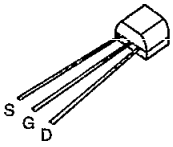

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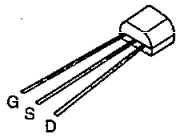

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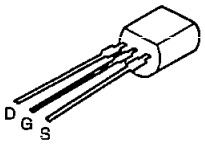

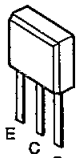

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2SD1020HTA

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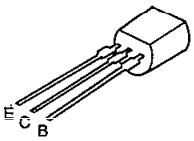
BN1A4ZTA
BN1L3NTA



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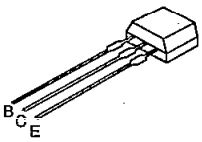

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RVTDTC124EST

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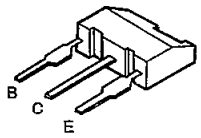

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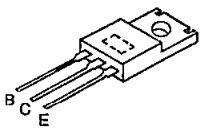

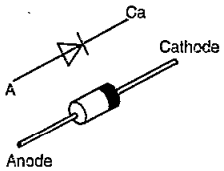

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RK360LFU1

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1SS291TA
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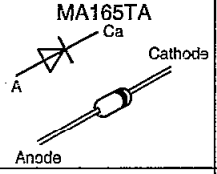

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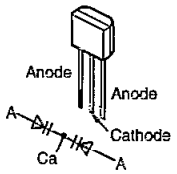

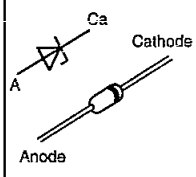

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MTZJ5R1BTA
MTZJ5R1CTA
MTZJ5R6BTA
MTZJ6R8BTA
MTZJ7R5CTA
MTZJ8R2BTA

MTZJ9R1CTA
MTZJ11CTA
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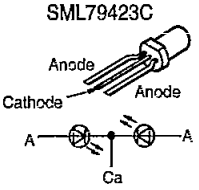
MTZJ24DTA
MTZJ36ATA

SPR505MDTT
SML79423C



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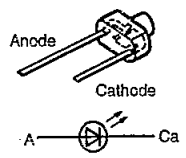
LNJ801TPSJAD



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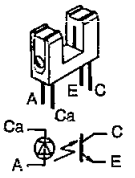

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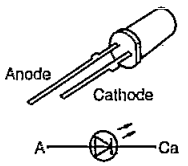
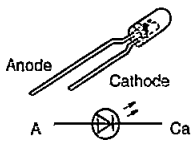
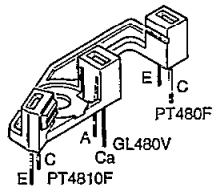


BR3433S





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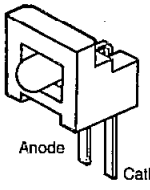
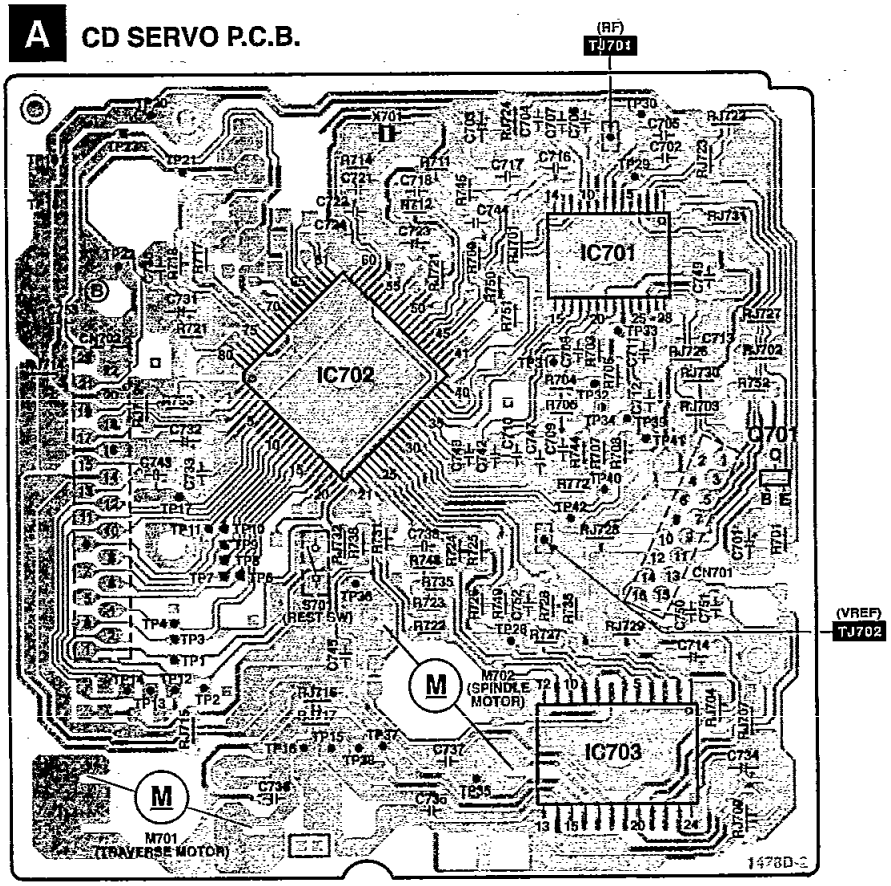


■ Printed Circuit Board Diagram

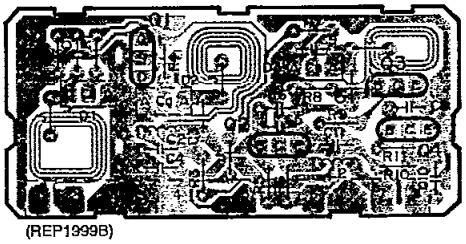
● This printed circuit board diagram may be modified at any time with the development of new technology.

A CD SERVO P.C.B.



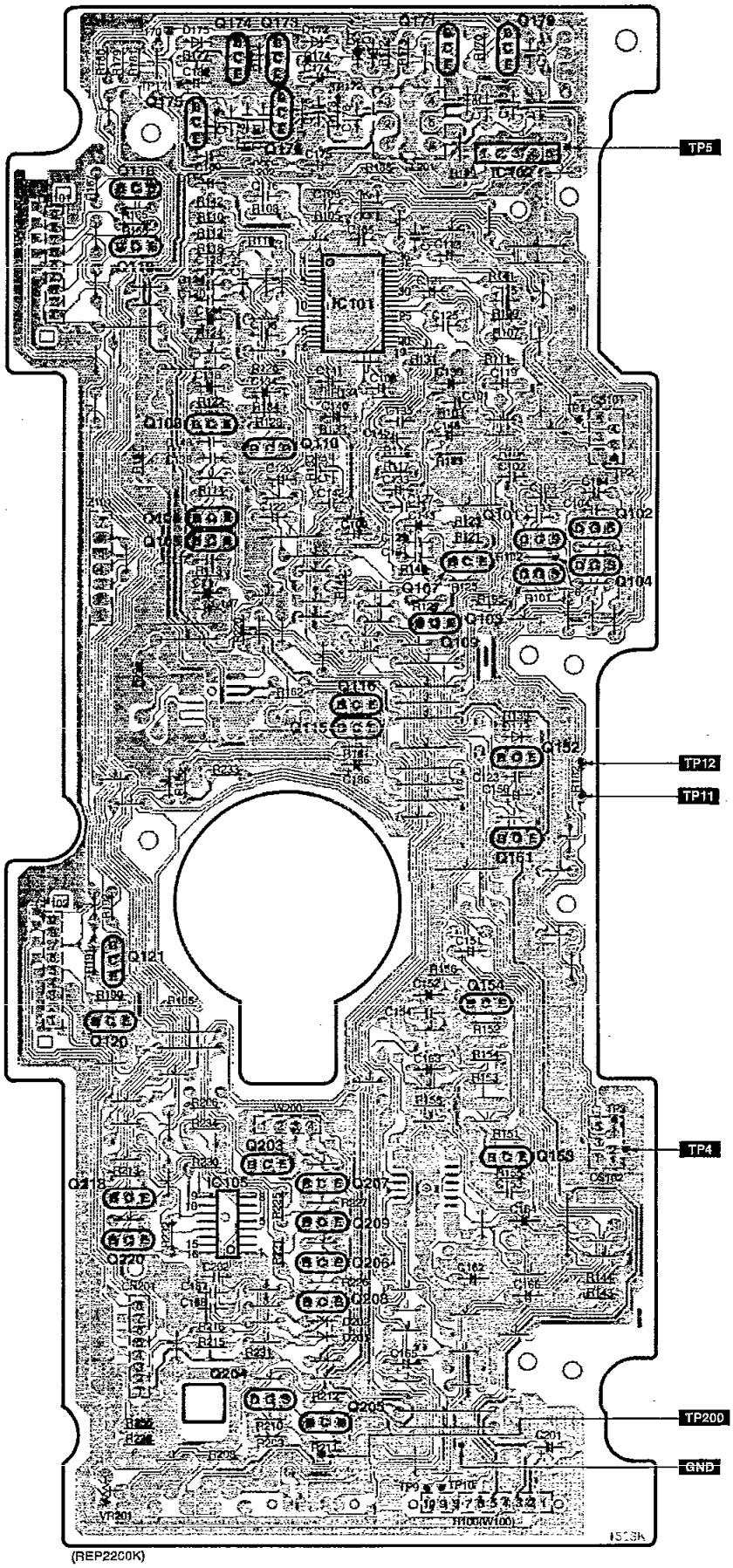
(REP2144D-N)

C FM FRONT END (Z120) P.C.B.



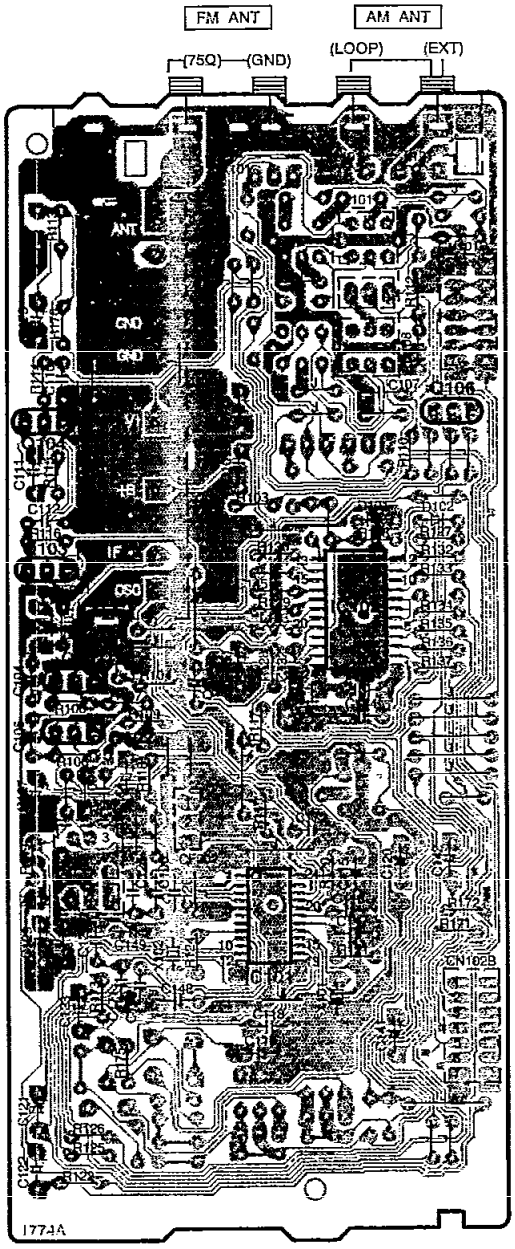
(REP1999B)

D MECHANISM CONTROL P.C.B.



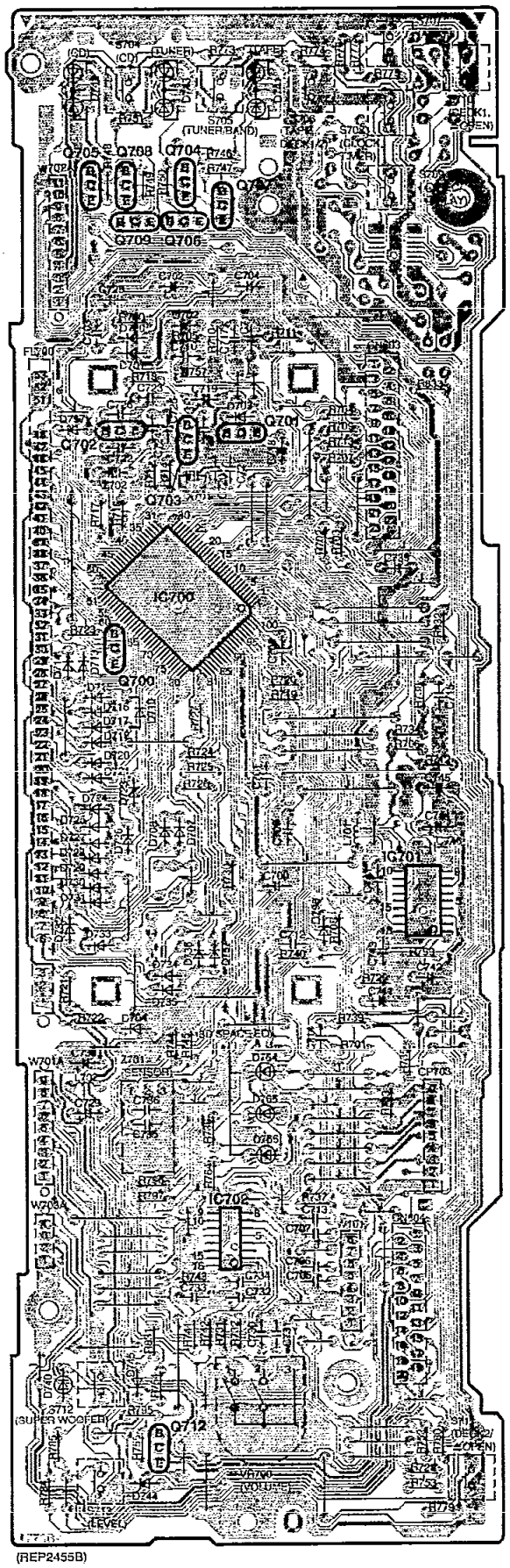
(REP2200K)

B TUNER P.C.B.



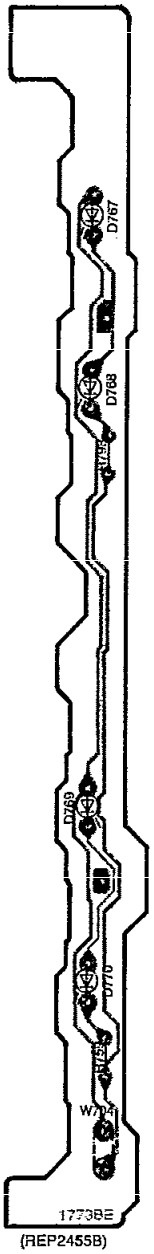
(REP2456A)

G FL P.C.B.

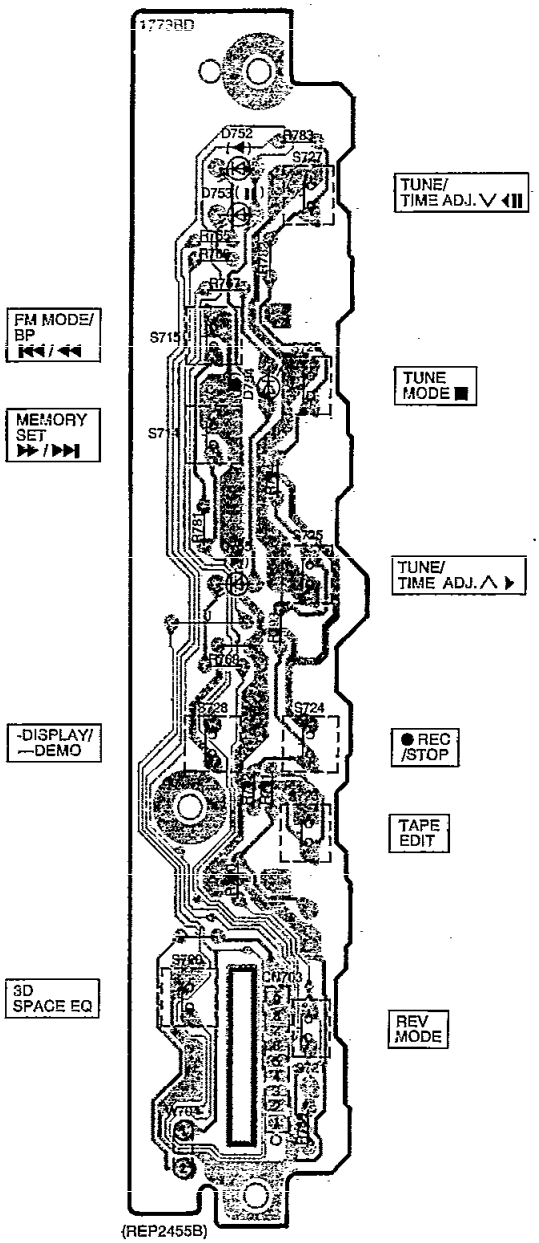


(REP2455B)

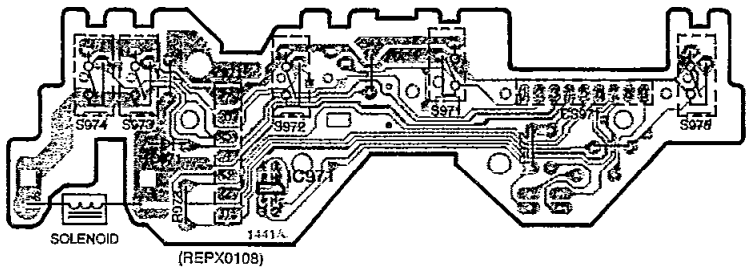
H LED P.C.B.



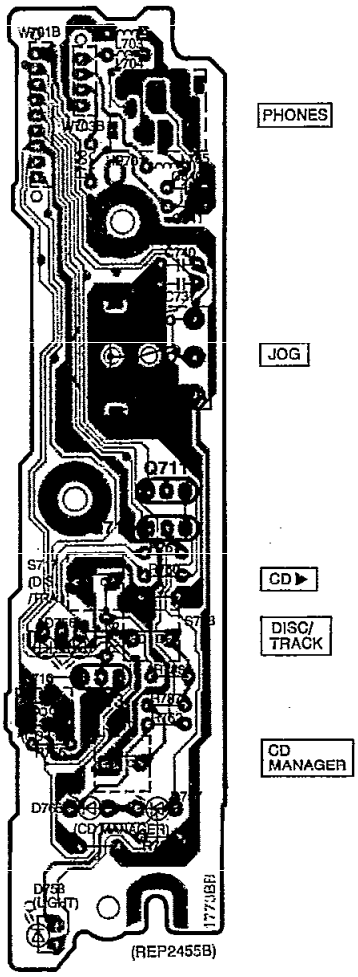
I OPERATION (3) P.C.B.



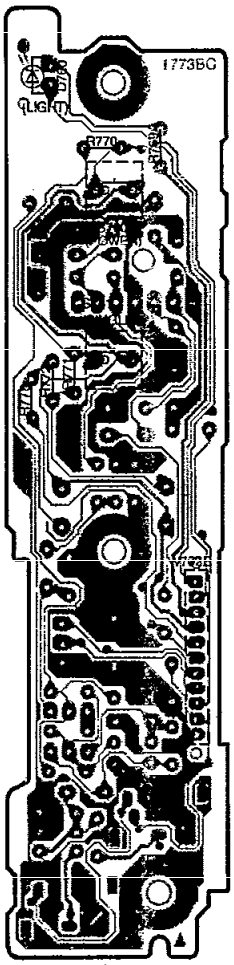
E MECHANISM (DECK2) P.C.B.



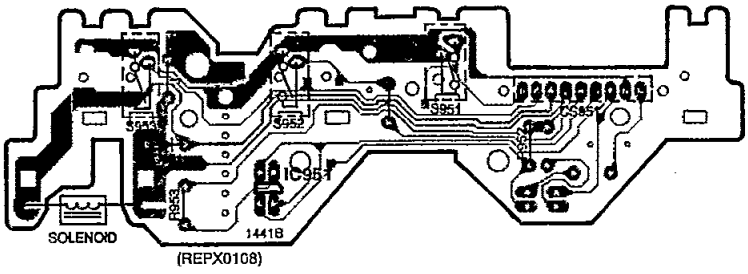
J OPERATION (1) P.C.B.



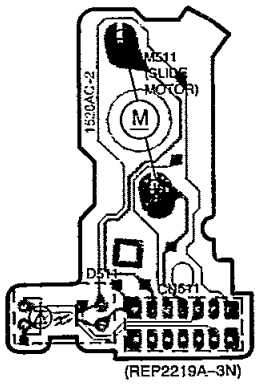
K OPERATION (2) P.C.B.



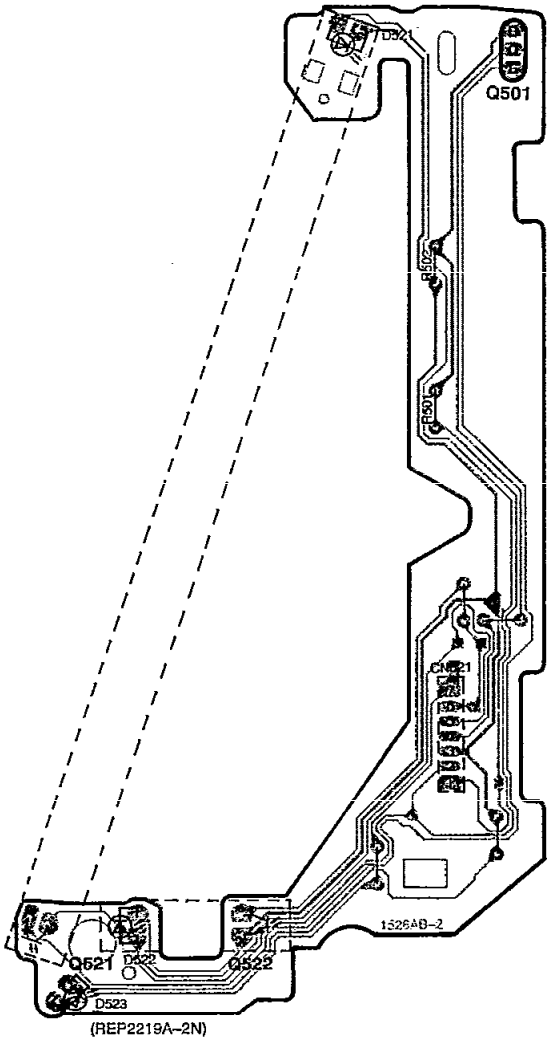
F MECHANISM (DECK1) P.C.B.



L SLIDE MOTOR P.C.B.

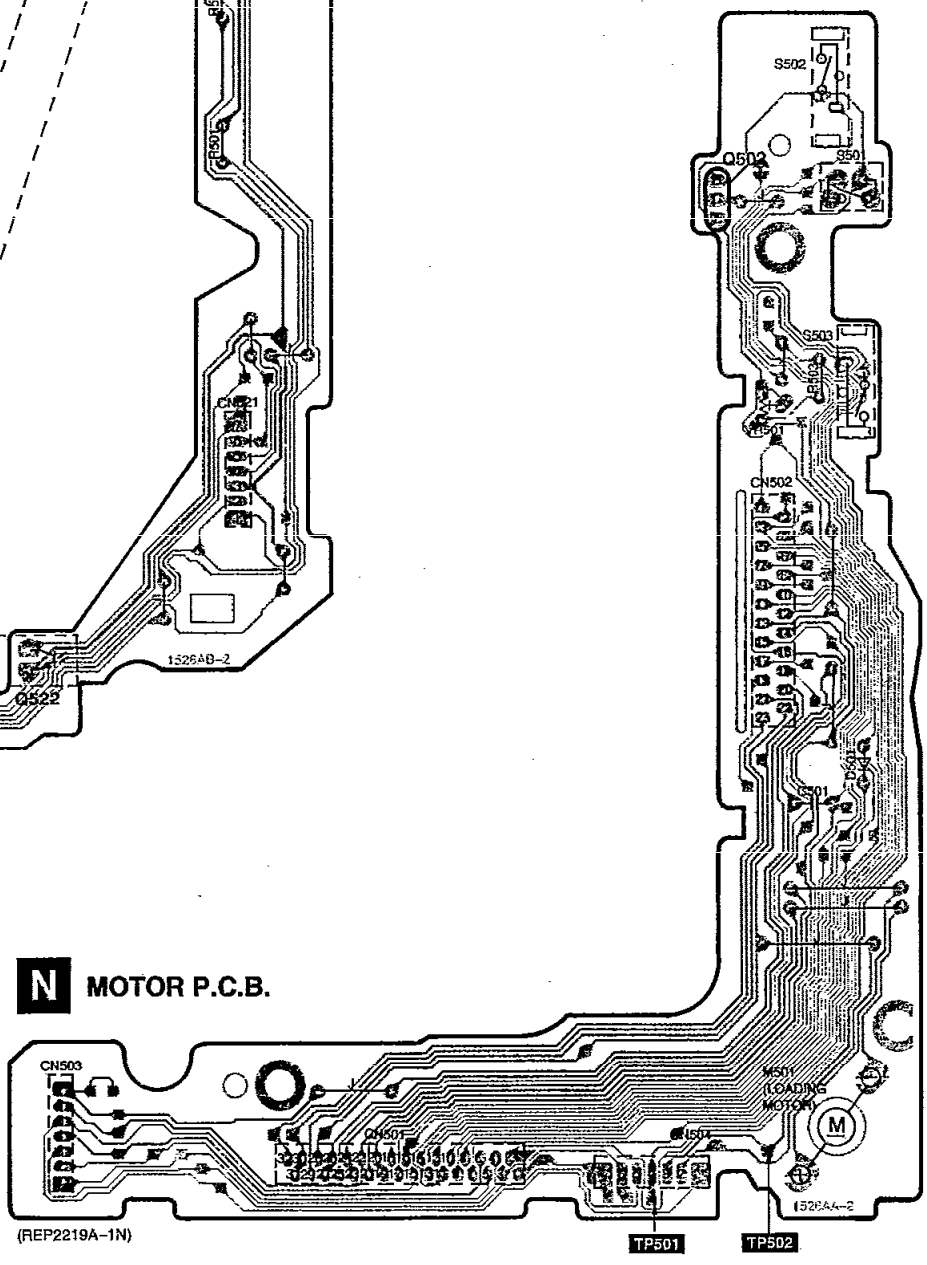


M PHOTO TR. P.C.B.



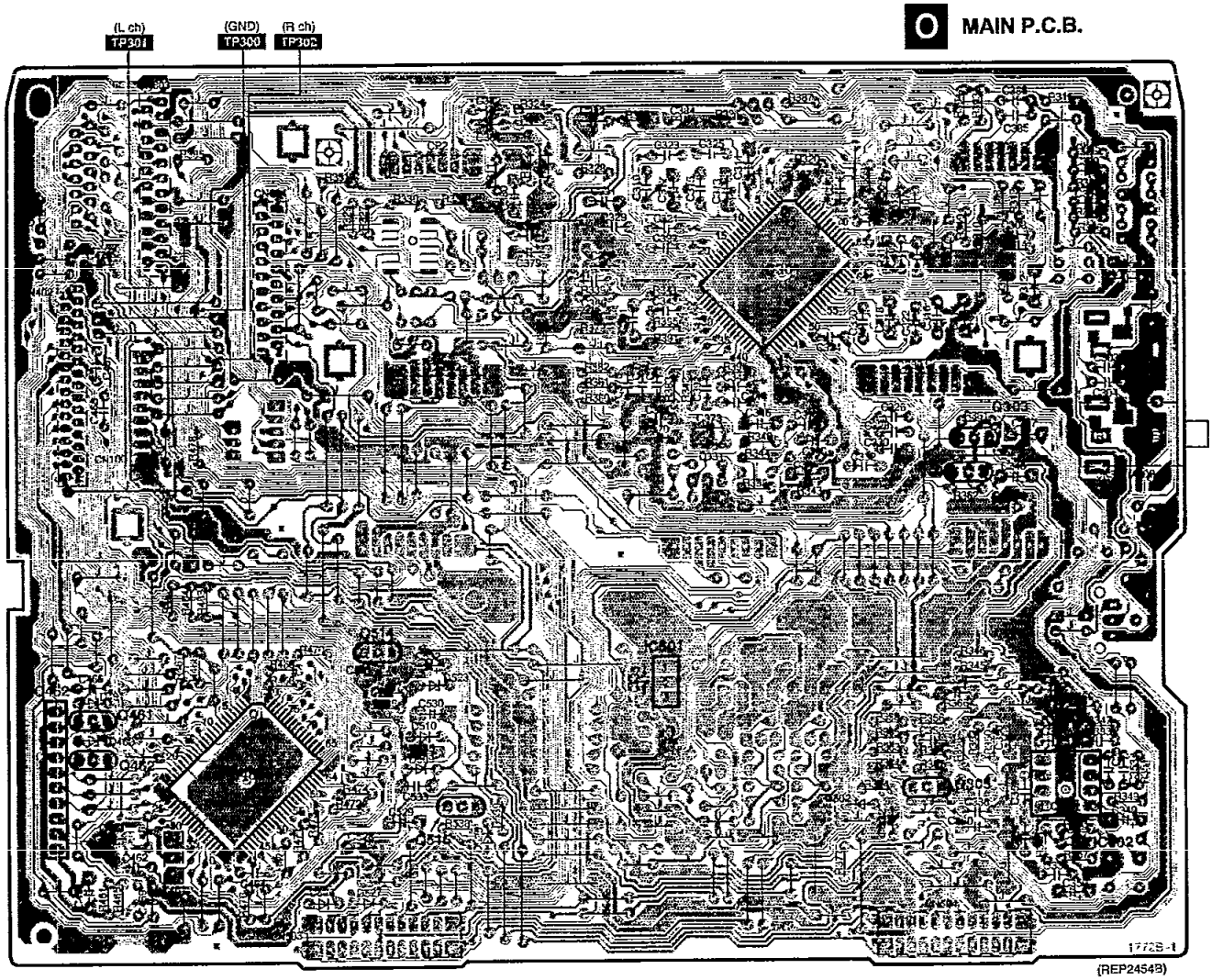
(REP2219A-2N)

N MOTOR P.C.B.

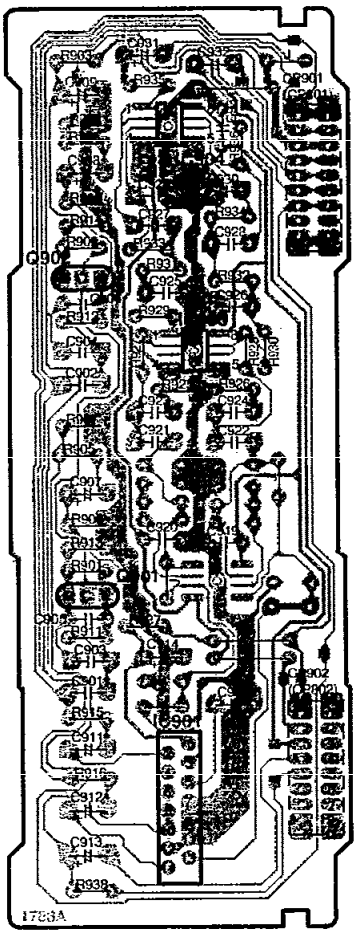


(REP2219A-1N)

O MAIN P.C.B.

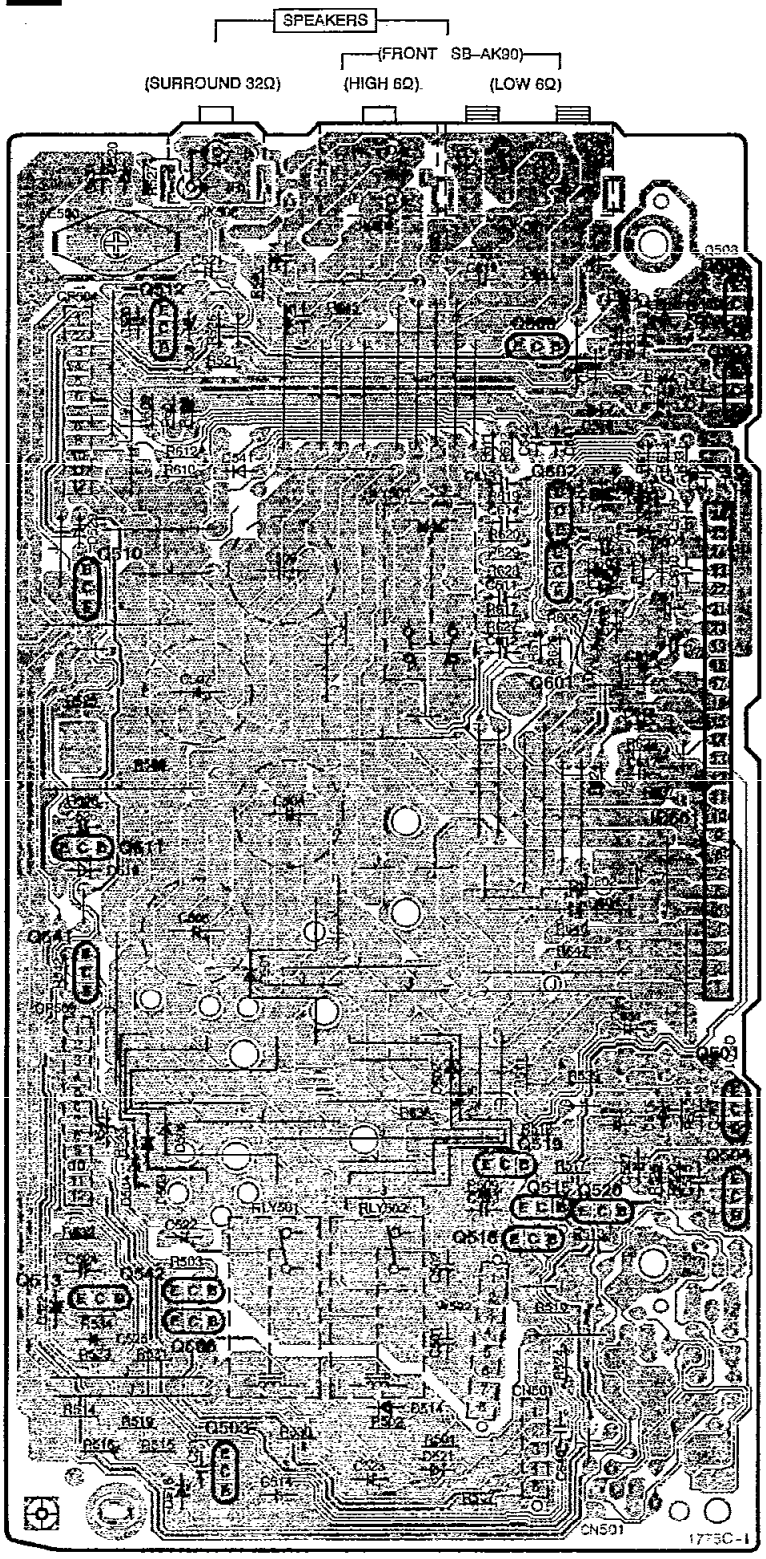


P BI-AMP P.C.B.



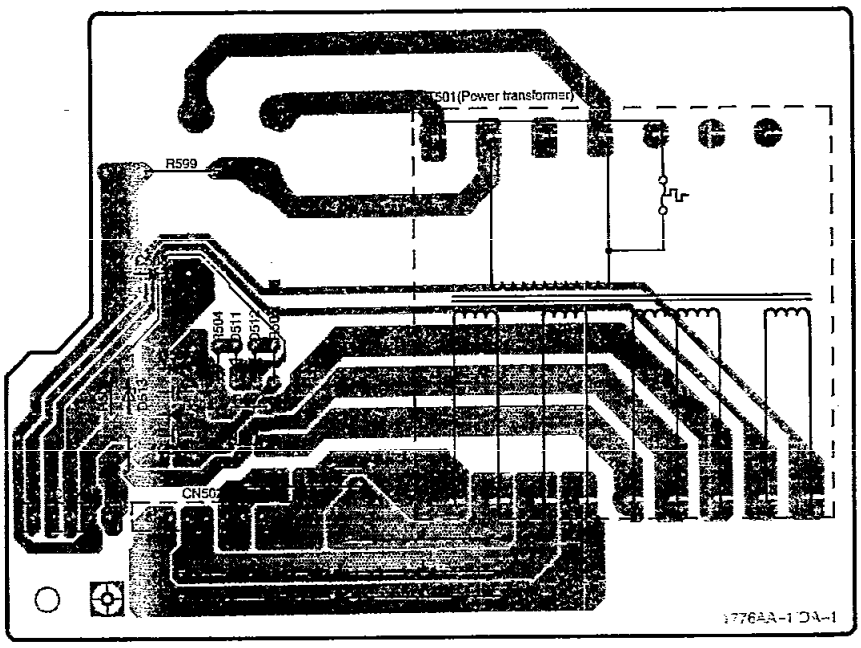
(REP2501A)

Q POWER AMP P.C.B.



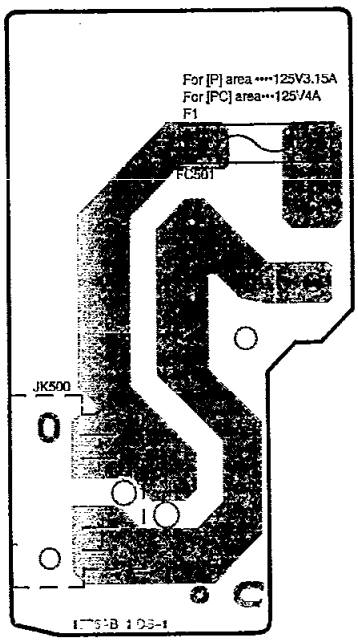
(REP2457C•••[P]
REP2457D•••[PC])

R POWER SUPPLY P.C.B.



(REP2458C•••[P]
REP2458D•••[PC])

S AC IN P.C.B.



AC IN
(120V 60Hz)

(REP2458C•••[P]
REP2458D•••[PC])

■ Terminal Function of IC's

• IC702 (MN662741RPA): Servo processor/ digital signal processor

No.	Mark	I/O Division	Function
1	BCLK	O	Serial bit clock output
2	LRCK	O	L/R discriminating signal output
3	SRDATA	O	Serial data
4	DVDD1	I	Power supply (digital circuit) terminal
5	DVSS1	—	GND (digital circuit) terminal
6	TX	—	Digital audio interface signal (Not used, open)
7	MCLK	I	Command clock signal
8	MDATA	I	Command data signal
9	MLD	I	Command load signal ("L" : LOAD)
10	SENSE	—	Sense signal (OFT, FESL, NACEND, NAJEND, POSAD, SFG) (Not used, open)
11	/FLOCK	—	Optical servo condition (focus) ("L" : lead-in) (Not used, open)
12	/TLOCK	—	Optical servo condition (tracking) ("L" : lead-in) (Not used, open)
13	BLKCK	—	Sub-code block clock (fÅÅ75 Hz)
14	SQCK	O	Sub-code Q register clock
15	SUBQ	I	Sub-code Q data
16	DMUTE	O	Muting input ("H" : MUTE) (Not used, connected to GND)
17	STAT	I	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQCK)
18	/RST	O	Reset signal ("L" : reset)
19	SMCK	I	System clock (f = 4.2336 MHz)
20	PMCK	O	Frequency division clock signal ($f=\frac{1}{192}\times$ Crystal OSC(16.9344MHz) = 88.2 kHz)
20	TRV	O	Traverse servo control
21	TVD	O	Traverse drive signal

No.	Mark	I/O Division	Function
23	PC	O	Turntable motor drive signal ("L" : ON)
24	ECM	O	Turntable motor drive signal (Forced mode)
25	ECS	O	Turntable motor drive signal (Servo error signal)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive signal output
28	FOD	O	Focus drive signal output
29	VREF	I	D/A drive output (TVD, ECS, TRD, FOD, FBAL, TBAL) normal voltage input terminal
30	FBAL	O	Focus balance adj. output
31	TBAL	O	Tracking balance adj. output
32	FE	I	Focus error signal (analog input)
33	TE	I	Tracking error signal (analog input)
34	RFENV	I	RF envelope signal
35	VDET	I	Oscillation det. signal ("H" : det.)
36	OFTR	I	Off track signal ("H" : Off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal ("L" : detection)
39	BDO	I	Dropout detection signal ("H" : dropout)
40	LDON	O	Laser power control ("H" : ON)
41	TES	O	Tracking error shunt output ("H" : dropout)
42	PLAY	O	Play signal ("H" : play) (Not used, open)
43	WVEL	O	Double velocity status signal ("H": double) (Not used, open)
44	ARF	I	RF signal input

No.	Mark	I/O Division	Function
45	IREF	I	Reference current input
46	DRF	I	DSL bias terminal (Not used, open)
47	DSLF	I/O	DSL loop filter terminal
48	PLLF	I/O	PLL loop filter terminal
49	VCOF	I/O	VCO loop filter terminal
50	AVDD2	I	DSL bial terminal (Not used, open)
51	AVSS2	—	GND (analog circuit) terminal
52	EFM	O	EFM signal (Not used, open)
53	PCK	O	PLL extract clock (f=4.3218MHz) (Not used, open)
54	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)
55	SUBC	O	Sub-code serial output clock (Not used, open)
56	SBCK	I	Sub-code serial input data (Not used, connected to GND)
57	VSS	—	GND terminal
58	X1	I	Crystal oscillator terminal (f=16.9344MHz)
59	X2	O	
60	VDD	I	Reset signal ("L": reset)
61	BYTCK	O	Byte clock signal (Not used, open)
62	/CLDCK	O	Sub-code frame clock signal (f CLDCK=7.35KHz: Normal) (Not used, open)
63	FCLK	O	Crystal frame clock (Not used, open)
64	IPFLAG	O	Interpolation flag terminal (Not used, open)

No.	Mark	I/O Division	Function
65	FLAG	O	Flag terminal (Not used, open)
66	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo) (Not used, open)
67	CRC	O	Sub-code CRC check terminal ("H": ON, "L": NG) (Not used, open)
68	DEMPH	O	De-emphasis ON signal ("H": ON) (Not used, open)
69	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
70	/RST2	I	Reset terminal after "MASH" circuit (Not used, connected to power supply)
71	/TEST	I	Test terminal (Normal: "H") (Not used, connected to power supply.)
72	AVDD1	I	Power supply (analog circuit) terminal (1)
73	OUTL	O	Lch audio signal
74	AVSS1	—	GND (analog circuit) terminal (1)
75	OUTR	O	Rch audio signal
76	RSEL	I	Polarity direction control terminal of RF signal (Not used, connected to power supply)
77	CSEL	I	Frequency control terminal of crystal oscillator (Not used, connected to GND)
78	PSEL	I	Test terminal (Normal: "L") (Not used, connected to GND)
79	MSEL	I	"SMCK" terminal frequency select ("L": SMCK=4.2336MHz) (Not used, connected to GND)
80	SSEL	O	"SUBQ" terminal mode select ("H": Q code buffer) (Not used, connected to power supply)

• IC700 (M38197MA161F): System control/ FL drive

No.	Mark	I/O Division	Function
1	DECK2	I	Cassette hall/mode/ half det. terminal
2	DECK1	I	Cassette hall/mode/half det. terminal
3	TPS-IN	I	TPS signal input
4	CRT	O	CR timer det. terminal
5 ⟆ 8	KEY4 ⟆ KEY1	I	Key switch det terminal
9	ECHO ON/OFF	—	Not used, connected to GND
10	ECHO VOL.	—	No used, connected to GND
11	SER3	O	LED drive data signal output
12	MIC	I	Not used, connected to GND
13	MUTA	O	Muting control signal output
14	NC	–	Not used, connected to GND
15	SPE. ANA. IN	I	Spe. analyzer input
16	SPE. ANA. CONT. A	O	Spe. analyzer control A output
17	SPE. ANA. CONT. B	O	Spe. analyzer control B output
18	SPE. ANA. CONT. C	O	Spe. analyzer control C output
19	CS	I	Chip select input
20	CLK 1	O	Serial clock signal output
21	SO 1	O	Serial data output
22	SI 1	I	Serial data input
23	REQ	I	CD request signal input
24	MCRST	I	Reset signal input
25	WOOF	O	Woofer control output

No.	Mark	I/O Division	Function
26	SER4	O	Key control clock signal output
27	MIC MUT	–	Not used, open
28	PLLCE	O	Micro-computer command load output
29	RMT	I	Remote controller signal input
30	PLLCK	O	Micro-computer command clock output
31	PLLDA	O	Micro-computer command data output
32	DC DET	I	DC det. terminal
33	P. CONT	O	Power control signal output
34	SYNC	I	Sync. signal input
35	/RESET	I	Reset input terminal
36	XC IN	I	Crystal Osc. terminal (f=32kHz)
37	XC OUT	O	
38	X IN	I	Crystal Osc. terminal (f=6MHz)
39	X OUT	O	
40	VSS	–	Connected to GND
41	MBP 1	O	Crystal Osc. control terminal
42	MBP 2		
43	SER 5	O	LED drive control signal
44	LED. D	O	LED drive signal
45 ⟆ 60	GRD16 ⟆ GRD1	O	FL digit signal output
61 ⟆ 84	AND1 ⟆ AND24	O	FL segment signal output

No.	Mark	I/O Division	Function
87	HP SW	I	Headphone signal input
88	SER 1	O	LED drive clock signal output
89	SER 2	O	LED drive data signal output
90	JOG 1A	I	JOG dial signal input 1A
91	VCC	I	Power supply terminal
92	JOG 1B	I	JOG dial signal input 1B
93	JOG 2A	I	JOG dial signal input 2A

No.	Mark	I/O Division	Function
94	JOG 2B	I	JOG dial signal input 2B
95	SD IN	I	Tuner signal receive det. terminal
96	STEREO IN	I	Stereo signal det. terminal
97	DO IN	I	PLL frequency control signal input
98	VP	I	Power supply terminal
99	AVSS	I	Connected to GND
100	VREF	I	Reference voltage input

● IC701 (AN8835SBE1): Servo amp

No.	Mark	I/O Division	Function
1	PDA	I	Focus signal input terminal 1 (Ach)
2	PDB	I	Focus signal input terminal 2 (Bch)
3	VCC	I	Power supply terminal
4	LPD	I	Laser PD signal
5	LD	O	Laser power auto control output
6	RF	O	RF amp terminal
7	RF IN	I	AGC input terminal
8	CAGC	I	AGC detection capacitor input
9	ARF	O	RF signal
10	CSBRT	I	OFTR capacitor connection terminal
11	CEA	I	HPF-AMP capacitor connection terminal
12	BDO	O	Dropout detection control
13	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
14	GND	—	GND terminal

No.	Mark	I/O Division	Function
15	/RFDET	O	RF det. signal output terminal ("L" : det.)
16	CROSS	O	Tracking error zero cross output
17	OFTR	O	Off track detection ("H" : det.)
18	VDET	O	Oscillation det. signal ("H" : det.)
19	ENV	O	Envelope signal output terminal
20	TEBPF	I	Oscillation detect input terminal
21	CCRS	I	CROSS capacitor connection terminal
22	TE	O	Tracking error signal
23	FE	O	Focusing error signal
24	TBAL	I	Tracking balance adj. input
25	FBAL	I	Focus balance adj. input
26	VREF	O	Reference voltage output terminal
27	PDE	I	Tracking signal input terminal 1 (E ch)
28	PDF	I	Tracking signal input terminal 2 (F ch)

● IC461 (UPD78043FG16): System control

No.	Mark	I/O Division	Function
1 ∫ 6	NONE	—	Not connected
7	LIGHT	O	Not used, open
8	VDD	I	Power supply terminal
9	SCK	I	Serial clock input terminal
10	SDO	O	Serial data output terminal (Not used, open)
11	SDI	I	Serial data input terminal
12	/CS	O	Chip select terminal
13	DMUTE	O	Muting control signal (Not used, open)
14	SQCK	O	Sub-code Q register clock
15	NC	—	Not connected
16	SUBQ	I	Sub-code Q data
17	/RESET	O	Reset signal output
18	NONE	—	Not connected
19	KBDATA	O	Keyboard data signal (Not used, open)
20	AVSS	—	GND terminal
21	/RSTSV	O	Reset signal output
22	CDREQ	O	CD request signal output
23	DIR	O	Motor control signal
24	SLIDE	O	Motor control signal
25	LOAD	O	Motor control signal
26	NONE	—	Not connected
27	H-60	I	Not used, connected to power supply
28	NONE	—	Not connected

No.	Mark	I/O Division	Function
29	AVDD	I	Power supply terminal
30	AVREF	I	Power supply terminal (Not used, connected to GND)
31	XT1	—	Not used, connected to GND
32	XT2	—	Not used, open
33	VSS	—	GND terminal
34	X1	I	Crystal Osc terminal (f=4.2336MHz)
35	X2	O	
36	MCLK	O	Command clock signal
37	MDATA	O	Command data signal
38	MLD	O	Command load signal ("L" LOAD)
39 ∫ 42	NONE	—	Not connected
43	PWM	O	Motor control signal
44	POFF	I	Power det. terminal (Not used, connected to GND
45	POSITION	I	Rotary tray position det. terminal
46	SPEED	I	Loading motor speed sensor signal
47	REMOCON	I	Remote control signal input (Not used, connected to GND)
48	IC	—	Not used, connected to GND
49	/EPHOLD	—	Not used, open
50	EPSC		
51	EPCLK		
52	VDD	I	Power supply terminal
53	POWER	O	Power ON/OFF output terminal (Not used, open)

No.	Mark	I/O Division	Function
54	EPSI	O	Serial data input terminal (Not used, open)
55	/EPCS	—	Not used, open
56	SINGLE	I	Disc slot det. terminal for single play (Not used, open)
57	DISC	I	Disc control signal
58	MLOCK	I	*Mechanism det. terminal (S501)*
59	CLAMP	I	Mechanism det. terminal(S502)
60	FREE	I	Mechanism det. terminal (S503)
61	NONE	—	Not connected
62	STAT	I	Status signal (CRC,CUE, CLVS, TTSTOP,FCLV, QCK)
63	REST	I	Rest position det.

No.	Mark	I/O Division	Function
64	MCS	—	Not used, open
65	STP1	—	Not used, connected to GND
66	STP2	—	Not used, connected to GND
67 ∫ 70	NONE	—	*Not connected*
71	VPP	I	Power supply terminal (Not used, connected to GND)
72 ∫ 80	NONE	—	Not connected

● IC703 (AN8389SE1): Focus coil/ tracking coil/ traverse motor/ spindle motor drive

No.	Mark	I/O Division	Function
1	Vcc	I	Power supply terminal
2	VREF	I	Reference voltage input terminal
3	IN4	I	Motor driver (4) input
4	IN3	I	Motor driver (3) input
5	GND	—	GND terminal
6	NC	—	Not used, connected to GND
7	NRESET	O	Reset terminal (Not used, open)
8	GND	—	GND terminal
9	IN2	O	Motor driver (2) input
10	PC2	I	Turntable motor drive signal (" L " : ON)
11	IN1	I	Motor driver (1) input
12	PC1	O	Not used, connected to GND

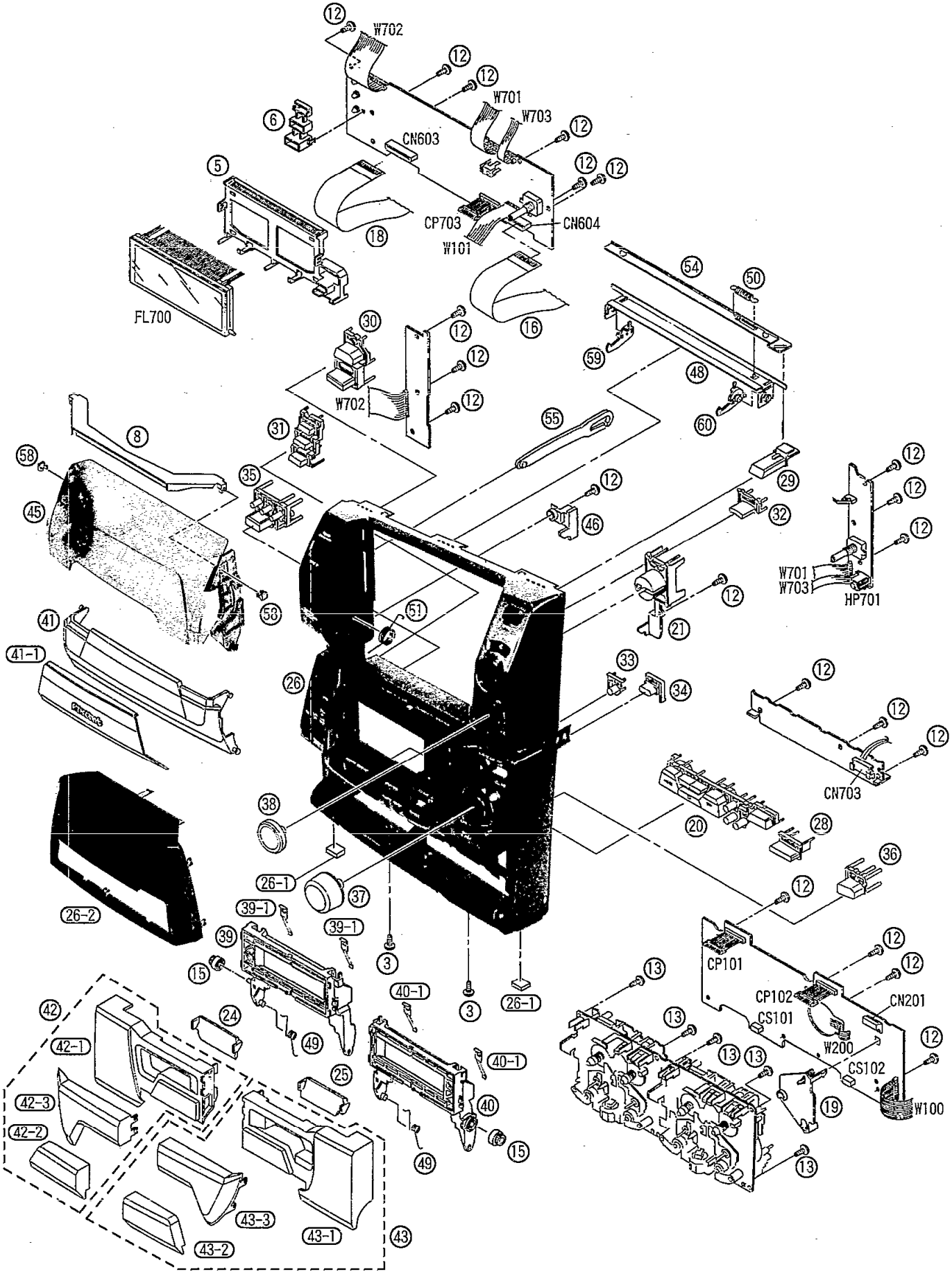
No.	Mark	I/O Division	Function
13	PVcc1	O	Driver power supply terminal (1)
14	PGND1	—	Driver GND terminal (1)
15	D1-	O	Motor driver (1) output terminal (-)
16	D1+	O	Motor driver (1) output terminal (+)
17	D2-	O	Motor driver (2) output terminal (-)
18	D2+	I	Motor driver (2) output terminal (+)
19	D3-	I	Motor driver (3) output terminal (-)
20	D3+	I	Motor driver (3) output terminal (+)
21	D4-	O	Motor driver (4) output terminal (-)
22	D4+	O	Motor driver (4) output terminal (+)
23	PGND2	—	Driver GND terminal (2)
24	PVCC2	I	Driver power supply (2)

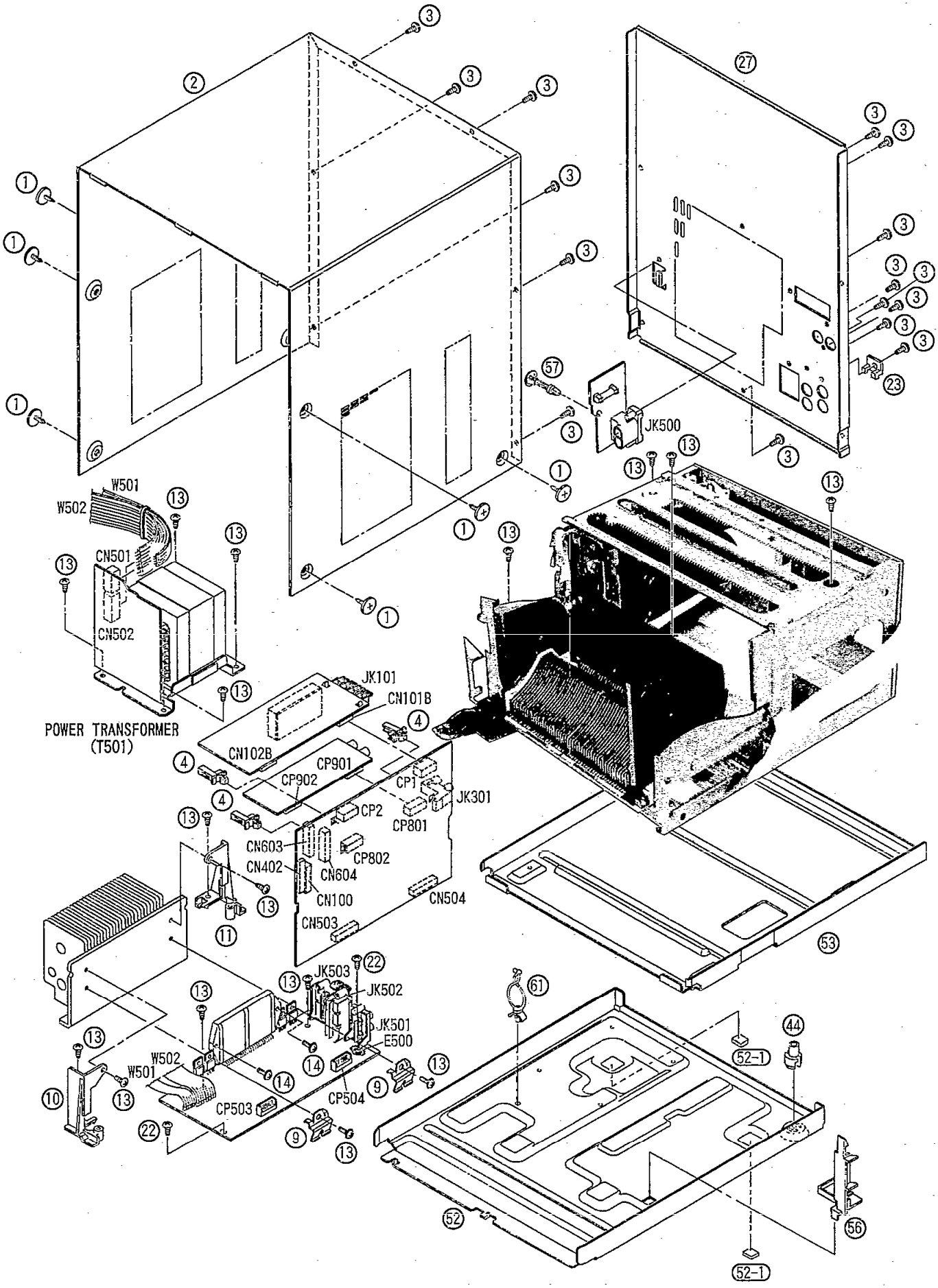
Replacement Parts List

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* Warning: This product uses a laser diode. Refer to caution statements on page 2.
* [M] indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RHD30007	SCREW	[M]
2	RKMD347-K	CABINET	[M]
3	XTBS3+8JFZ1	SCREW	[M]
4	RMNO203	P. C. B. HOLDER	[M]
5	RMNX0016	FL HOLDER	[M]
6	RMNO440-1	LED HOLDER	[M]
7	RMR1075-K	LED HOLDER	[M]
8	RYQO207-Q1	CD LIGHTING PLATE	[M]
9	RMCO158-S	TRANSISTOR HOLDER	[M]
10	RMRX0023-X	HEAT SINK SUPPORT	[M]
11	RMRX0024-X	HEAT SINK SUPPORT	[M]
12	XTBS26+10J	SCREW	[M]
13	XTB3+10JFZ	SCREW	[M]
14	XTW3+15T	SCREW	[M]
15	RDGO129-1	DAMPER GEAR	[M]
16	REEO699	FFC(20P)	[M]
17	REEO773	FFC(32P)	[M]
18	REEO774	FFC(23P)	[M]
19	RMRO909-X	DECK P. C. B. SUPPORT	[M]
20	RYQO200-S	MAIN CONTROL BUTTON ASS'Y	[M]
21	RYQO201-K	CD BUTTON ASS'Y	[M]
22	XTB3+20J	SCREW	[M]
23	RMNO449	BACK UP PIECE	[M]
24	RGLO363-Q	CASSETTE LIGHTING PIECE(L)	[M]
25	RGLO364-Q	CASSETTE LIGHTING PIECE(R)	[M]
26	RFKGAAK90P-K	FRONT PANEL ASS'Y	[M]
26-1	SHG1654	LEG RUBBER	[M]
26-2	RKWO511-V	FL WINDOW	[M]
27	RGRO255E-A	REAR PANEL	[M] (P)
27	RGRO255E-B	REAR PANEL	[M] (PC)
28	RGU1524-S	REVERSE BUTTON	[M]
29	RGU1525-K	CD OPEN BUTTON	[M]
30	RGU1526A-K	POWER BUTTON	[M]
31	RGU1528-Q	SELECTOR BUTTON	[M]
32	RGU1529-Q1	CD MANAGER BUTTON	[M]
33	RGU1530-Q	WOOFER BUTTON	[M]
34	RGU1531-K	LEVEL BUTTON	[M]
35	RGU1533-K	DECK OPEN BUTTON(L)	[M]
36	RGU1534-K	DECK OPEN BUTTON(R)	[M]
37	RGWO027-K	VOLUME KNOB	[M]
38	RGWO263-S	JOG DIAL KNOB	[M]
39	RFKLACH330AK	CASSETTE HOLDER(L) ASS'Y	[M]
39-1	RUS757ZAA	CASSETTE HALF SPRING	[M]
40	RFKLACH330BK	CASSETTE HOLDER(R) ASS'Y	[M]
40-1	RUS757ZAA	CASSETTE HALF SPRING	[M]
41	RFKNAAK90P-K	CD LID ASS'Y	[M]
41-1	RGKO907-S	CD LID ORNAMENT	[M]
42	RFKLAAK70PBK	CASSETTE LID(L) ASS'Y	[M]
42-1	RKFO519-K	CASSETTE LID(L)	[M]
42-2	RGKO905-S	CASSETTE ORNAMENT(L)	[M]
42-3	RKWO513-Q	CASSETTE LID WINDOW(L)	[M]
43	RFKLAAK70PAK	CASSETTE LID(R) ASS'Y	[M]
43-1	RKFO520-K	CASSETTE LID(R)	[M]
43-2	RGKO906-S	CASSETTE ORNAMENT(R)	[M]
43-3	RKWO514-Q	CASSETTE LID WINDOW(R)	[M]
44	SHE187-4	P. C. B. SUPPORT	[M]
45	RKWO512-Q	CD PANEL WINDOW	[M]
46	RMR1091-K	CD LID HOLDER	[M]
47	RMRO950-K	FFC HOLDER	[M]
48	RMA1047	TOP SUPPORT ANGLE	[M]
49	RMBO474	CASSETTE OPEN SPRING	[M]
50	RMBO516	CD EJECT LOD SPRING	[M]
51	RMBO517	CD OPEN SPRING	[M]
52	RFKJAAK90P-K	BOTTOM CHASSIS ASS'Y	[M]
52-1	SHG1654	LEG RUBBER	[M]
53	RMKO359	CD CHASSIS	[M]
54	RMMO176	CD EJECT LOD	[M]
55	RMMO177	MEGA JOINT	[M]
56	RMNX0017-X	MAIN P. C. B. SUPPORT	[M]
57	RMNX0019	P. C. B. SPACER	[M]
58	RMR1076-K	LIGHTING PLATE HOLDER	[M]
59	RMNO441-1	CD EJECT HOOK(L)	[M]
60	RMNO442-1	CD EJECT HOOK(R)	[M]
61	RMRX0026-W	WIRE CLAMPER	[M]

■ Cabinet Parts Location




W501
W502
CN501
CN502
POWER TRANSFORMER
(T501)
JK101
CN101B
CN102B
CP901
CP902
CP1
CP2
CP801
JK301
CN603
CN402
CP802
CN604
CN100
CN504
CN503
JK500
JK503
JK502
JK501
E500
CP503
CP504

■ Replacement Parts List (Electrical)

Notes: * Important safety notice:
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Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101*1	M51167BFP	IC	[M]
IC101*2	LA1832MH-TEL	IC	[M]
IC102*1	BA7755A	IC	[M]
IC102*2	LC7218M-TE-L	IC	[M]
IC105	BU2040F-E2	IC	[M]
IC301	M62433FP	IC	[M]
IC302	M5218AP	IC	[M]
IC461	UPD78043FG16	IC	[M]
IC462	BA6247N	IC	[M]
IC501	AN78M05	IC	[M]⚠
IC601	RSN309W44-P	IC	[M]⚠
IC700	M38197MA161F	IC	[M]
IC701*5	BA3835F-E1	IC	[M]
IC701*6	AN8835SBE1	IC	[M]
IC702*5	BU2090F-E2	IC	[M]
IC702*6	MN662741RPA	IC	[M]
IC703	AN8389SE1	IC	[M]
IC901	M51131L-702	IC	[M]
IC903, 904	BA4558FDXT1	IC	[M]
IC951, 952	ON2180RLC	IC	[M]
IC971, 972	ON2180RLC	IC	[M]
		TRANSISTOR(S)	
Q1	2SK544F-AC	TRANSISTOR	[M]
Q2	2SC2786M	TRANSISTOR	[M]
Q3, 4	2SC2787FL1TA	TRANSISTOR	[M]
Q101*1	2SJ40CDTA	TRANSISTOR	[M]
Q101*2	2SC2787L	TRANSISTOR	[M]
Q102*1	2SJ40CDTA	TRANSISTOR	[M]
Q102*2	2SC2787L	TRANSISTOR	[M]
Q103*1	2SJ40CDTA	TRANSISTOR	[M]
Q103*2	2SC2785FE	TRANSISTOR	[M]
Q104*1	2SJ40CDTA	TRANSISTOR	[M]
Q104*2	2SC2785FE	TRANSISTOR	[M]
Q105	BA1L4ZTA	TRANSISTOR	[M]
Q106*1	BA1L4ZTA	TRANSISTOR	[M]
Q106*2	RVTDTA143XST	TRANSISTOR	[M]
Q107, 108	BA1L4ZTA	TRANSISTOR	[M]
Q109, 110	BA1L3ZTA	TRANSISTOR	[M]
Q115, 116	2SD1020HTA	TRANSISTOR	[M]
Q118-121	2SC2785FE	TRANSISTOR	[M]
Q151, 152	BA1L4ZTA	TRANSISTOR	[M]
Q153, 154	2SC2785FE	TRANSISTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
Q171	2SD1302STA	TRANSISTOR	[M]
Q173	BA1L4ZTA	TRANSISTOR	[M]
Q174	2SC2785FE	TRANSISTOR	[M]
Q175, 176	2SD1302STA	TRANSISTOR	[M]
Q179	2SC2784FTA	TRANSISTOR	[M]
Q203	2SD965Q	TRANSISTOR	[M]
Q204	2SK301QTA	TRANSISTOR	[M]
Q205	BA1L4ZTA	TRANSISTOR	[M]
Q206, 207	2SB621R	TRANSISTOR	[M]
Q208, 209	BA1A4ZTA	TRANSISTOR	[M]
Q218	BN1A4MTA	TRANSISTOR	[M]
Q220	BN1L3NTA	TRANSISTOR	[M]
Q303, 304	2SD1020HTA	TRANSISTOR	[M]
Q305	BN1A4ZTA	TRANSISTOR	[M]
Q461	BA1L3ZTA	TRANSISTOR	[M]
Q462	BA1F4MTA	TRANSISTOR	[M]
Q501*3	2SD2395E	TRANSISTOR	[M]⚠
Q501*9	2SB1320AQRTA	TRANSISTOR	[M]
Q502	2SC3311AIQST	TRANSISTOR	[M]
Q503	2SD2395E	TRANSISTOR	[M]⚠
Q504	2SB1566E	TRANSISTOR	[M]
Q506	2SC1740STA	TRANSISTOR	[M]
Q507	2SD2395E	TRANSISTOR	[M]⚠
Q508	2SD2395E	TRANSISTOR	[M]
Q509	BN1A4MTA	TRANSISTOR	[M]
Q510	BA1A4MTA	TRANSISTOR	[M]
Q511	2SC2001K	TRANSISTOR	[M]⚠
Q512	2SD2395E	TRANSISTOR	[M]⚠
Q513	KSD471ACYGTA	TRANSISTOR	[M]⚠
Q514	2SB1238QRTV6	TRANSISTOR	[M]⚠
Q515*3	2SC2785FE	TRANSISTOR	[M]
Q515*8	BA1A4ZTA	TRANSISTOR	[M]
Q516	2SC2785FE	TRANSISTOR	[M]
Q519	2SC2785FE	TRANSISTOR	[M]
Q520	2SA933SSTA	TRANSISTOR	[M]
Q521	PT4810F	TRANSISTOR	[M]
Q522	PT480F	TRANSISTOR	[M]
Q541	2SA933SSTA	TRANSISTOR	[M]
Q542	2SC2785FE	TRANSISTOR	[M]
Q601	2SD1359QRTV2	TRANSISTOR	[M]⚠
Q602	2SB1238QRTV6	TRANSISTOR	[M]⚠
Q700	2SC2785FE	TRANSISTOR	[M]
Q701*5	RVTDTC124EST	TRANSISTOR	[M]
Q701*6	2SB709S	TRANSISTOR	[M]
Q702, 703	2SC2785FE	TRANSISTOR	[M]
Q704-706	BN1A4MTA	TRANSISTOR	[M]
Q707-709	BA1L3ZTA	TRANSISTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
Q710, 711	BN1A4MTA	TRANSISTOR	[M]
Q712	2SC2001K	TRANSISTOR	[M]
Q713	RVTDTC124EST	TRANSISTOR	[M]
Q901, 902	2SC2785FE	TRANSISTOR	[M]
		DIODE(S)	
DI-3	SVC211SPA-AL	DIODE	[M]
D101	MTZJ5R1BTA	DIODE	[M]⚠
D102	1SS254TA	DIODE	[M]
D171	1SS254TA	DIODE	[M]
D172	MTZJ4R7BTA	DIODE	[M]
D173	1SS254TA	DIODE	[M]
D174	MTZJ3R6BTA	DIODE	[M]
D175	1SS254TA	DIODE	[M]
D201, 202	1SS254TA	DIODE	[M]
D302	1SS254TA	DIODE	[M]
D331, 332	MTZJ5R1BTA	DIODE	[M]⚠
D461	MTZJ7R5CTA	DIODE	[M]
D462	MTZJ5R6BTA	DIODE	[M]
D501*3	1N5402BM21	DIODE	[M]⚠
D501*4	MA165	DIODE	[M]
D502-506	1N5402BM21	DIODE	[M]⚠
D508	RL1N4003N02	DIODE	[M]⚠
D509*7	RL1N4003N02	DIODE	[M]⚠
D509*8	1D3E	DIODE	[M]
D510	1D3E	DIODE	[M]
D511*4	RSQGP1S53V	L. E. D.	[M]
D511*7	1D3E	DIODE	[M]⚠
D512	1D3E	DIODE	[M]
D513	MTZJ5R1CTA	DIODE	[M]⚠
D514	1SS254TA	DIODE	[M]
D515	MTZJ16ATA	DIODE	[M]⚠
D516	MTZJ8R2BTA	DIODE	[M]⚠
D518	MTZJ9R1CTA	DIODE	[M]⚠
D519	MTZJ5R6BTA	DIODE	[M]⚠
D520	MTZJ11CTA	DIODE	[M]⚠
D521*3	1D3E	DIODE	[M]
D521*9	LN66S	L. E. D.	[M]
D522*3	MTZJ6R8BTA	DIODE	[M]⚠
D522*9	GL480V	L. E. D.	[M]
D523*8	MTZJ36ATA	DIODE	[M]⚠
D523*9	BR3433S	L. E. D.	[M]
D525-529	1SS254TA	DIODE	[M]
D538, 539	1D3E	DIODE	[M]
D541	1SS254TA	DIODE	[M]
D601, 602	RK306LFU1	DIODE	[M]
D604-607	MTZJ24DTA	DIODE	[M]⚠
D700-702	1SS291TA	DIODE	[M]
D703	1SS254TA	DIODE	[M]
D704	MTZJ4R3BTA	DIODE	[M]⚠
D707, 708	1SS254TA	DIODE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
D713-721	1SS254TA	DIODE	[M]
D723-737	1SS254TA	DIODE	[M]
D740	LNJ301MPUJAD	L. E. D.	[M]
D741-743	SML79423C	L. E. D.	[M]
D744	1D3E	DIODE	[M]
D745	1SS254TA	DIODE	[M]
D752-755	LNJ301MPUJAD	L. E. D.	[M]
D756	SPR505MDTT	L. E. D.	[M]
D757	LNJ301MPUJAD	L. E. D.	[M]
D758	QLMJF000	L. E. D.	[M]
D760	QLMJF000	L. E. D.	[M]
D763	LNJ301MPUJAD	L. E. D.	[M]
D764-766	LNJ801TPSJAD	L. E. D.	[M]
D767-770	LNJ301MPUJAD	L. E. D.	[M]
D796	1SS254TA	DIODE	[M]
D797	1SS291TA	DIODE	[M]
D951	MA165	DIODE	[M]
D971	MA165	DIODE	[M]
		WIRE HOLDER(S)	
H101	RMR0317	WIRE HOLDER(8P)	[M]
H701A	RMR0318	WIRE HOLDER(9P)	[M]
H701B	RMR0318	WIRE HOLDER(9P)	[M]
H702A	RMR0320	WIRE HOLDER(11P)	[M]
H702B	RMR0320	WIRE HOLDER(11P)	[M]
H703A	RMR0313	WIRE HOLDER(4P)	[M]
H703B	RMR0313	WIRE HOLDER(4P)	[M]
		VARIABLE RESISTOR(S)	
VR201	RRN6B05B73TA	V. R	[M]
VR501	EVMLGGA00B14	V. R	[M]
VR700	RRV16B24104B	V. R	[M]
VR701	RRV16B24204C	V. R	[M]
		COMPONENT COMBINATION(S)	
Z101*1	EXBF7L355SYV	BLOCK RESISTOR	[M]
Z101*2	RLA2Z002M-T	AM ANT/OSC	[M]
Z102	RLI2Z006M-T	AM IFT	[M]
Z701	RCDGP1U28XD	REMOTE SENSOR	[M]
Z971	EXBF7L355SYV	COMPONENT COMBINATION	[M]
		COIL(S)	
L1	RLQZP1R2KT-Y	COIL	[M]
L2	RLQZPR47KT-Y	COIL	[M]
L101	ELESNR68MA	COIL	[M]
L103	RLQZPR47KT-Y	COIL	[M]
L191	ELESNR68MA	COIL	[M]
L201	RL08C002M-T	COIL	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
L202	RLQZB470KT-D	COIL	[M]
L701	RLQZP3R3KT-Y	COIL	[M]
L702	RLQZP101KT-Y	COIL	[M]
L703-706	RLQZP100KT-Y	COIL	[M]
		TRANSFORMER(S)	
T501	RTP2N3C002	POWER TRANSFORMER	[M]⚠
		FILTER(S)	
CF201, 202	RLFFETWNA01L	FILTER	[M]
		OSCILLATOR(S)	
X101	RSXZ456KM01	OSCILLATOR	[M]
X102	RLFDFT12DD	OSCILLATOR	[M]
X103	SVQ49U722-S	OSCILLATOR	[M]
X461	RSXY4M23M01T	OSCILLATOR	[M]
X701*5	RSXD32K7S02	OSCILLATOR	[M]
X701*6	RSXZ16M9M01T	OSCILLATOR	[M]
X702	EF0EN6004T4	OSCILLATOR	[M]
		DISPLAY TUBE(S)	
FL700	RSL0237-F	DISPLAY TUBE	[M]
		FUSE(S)	
F1	XBA1C40NBAL	FUSE, 125V, 3.15A	[M]⚠
		SWITCH(ES)	
S501	RSP1AD17-A	SW	[M]
S502, 503	RSH1AD05	SW	[M]
S700	EVQ21405R	SW	[M]
S701*5	EVQ21405R	SW	[M]
S701*6	RSM0006-P	SW	[M]
S704-715	EVQ21405R	SW	[M]
S716	RSH1AD42-A	SW	[M]
S717-721	EVQ21405R	SW	[M]
S723-728	EVQ21405R	SW	[M]
S951	RSH1AD18-1U	SW	[M]
S952, 953	RSH1AD19-2U	SW	[M]
S971	RSH1AD18-1U	SW	[M]
S972-975	RSH1AD19-2U	SW	[M]
		CONNECTOR(S) AND SOCKET(S)	
CN100	RJS1A5210	CONNECTOR(10P)	[M]
CN101B	RJU057W007	SOCKET(7P)	[M]
CN102B	RJU057W007	SOCKET(7P)	[M]

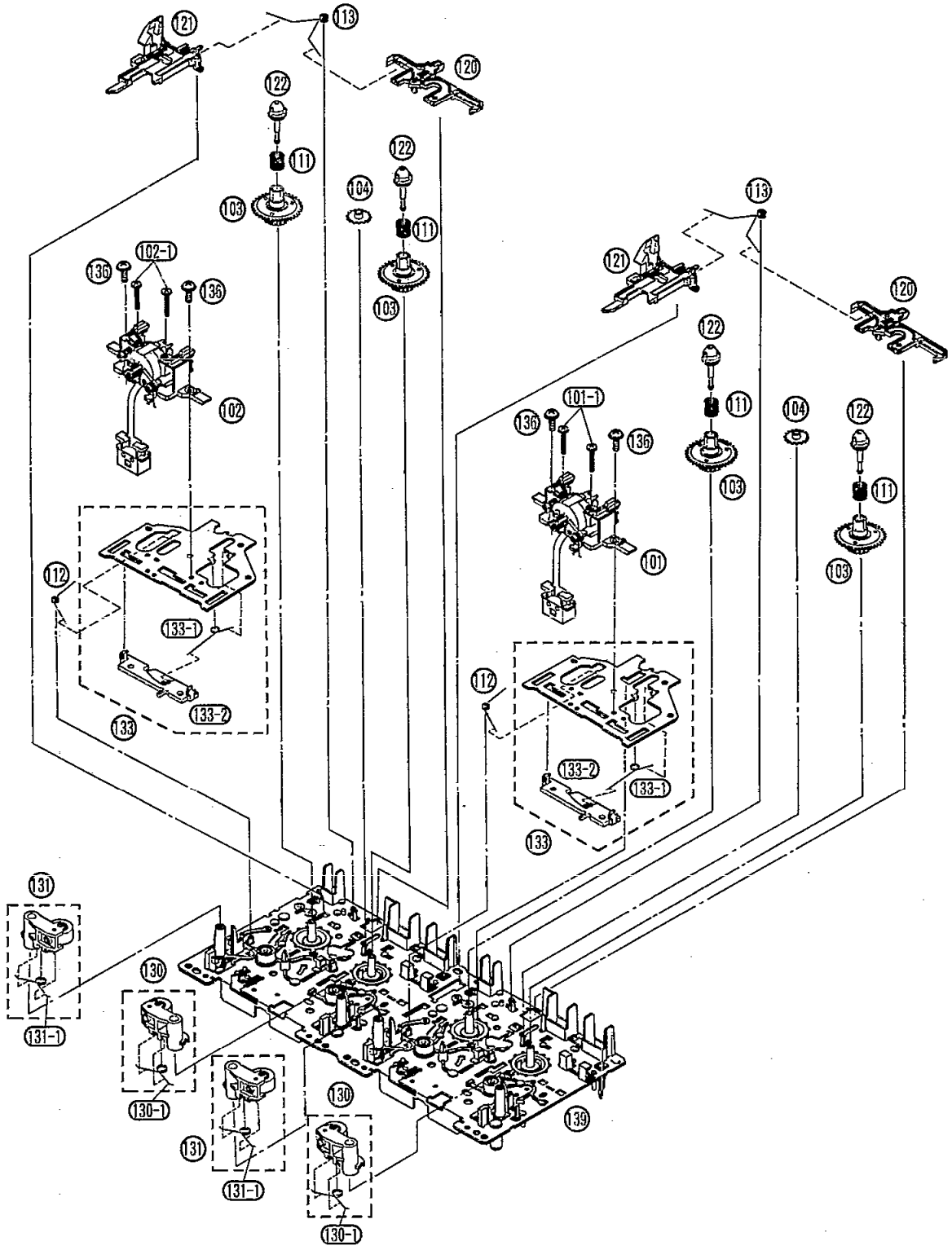
Ref. No.	Part No.	Part Name & Description	Remarks
CN201	RJS8T7ZA	CONNECTOR(8P)	[M]
CN402	RJS2A5732	CONNECTOR(32P)	[M]
CN501*4	RJS2A3332	CONNECTOR(32P)	[M]
CN501*7	RJS1A6605	CONNECTOR(5P)	[M]
CN502*4	RJS1A6223-1	CONNECTOR(23P)	[M]
CN502*7	RJS8T5ZA	CONNECTOR(8P)	[M]
CN503*4	RJT057W007-1	CONNECTOR(7P)	[M]
CN503*8	RJU057W012	SOCKET(12P)	[M]
CN504*4	RJS7T4ZA	CONNECTOR(7P)	[M]
CN504*8	RJU057W012	SOCKET(12P)	[M]
CN511	RJU057W007	SOCKET(7P)	[M]
CN521	RJS7T7ZA	CONNECTOR(7P)	[M]
CN603*5	RJS1A9423	CONNECTOR(23P)	[M]
CN603*8	RJS1A9423	CONNECTOR(23P)	[M]
CN604*5	RJS1A6820	CONNECTOR(20P)	[M]
CN604*8	RJS1A6820	CONNECTOR(20P)	[M]
CN701	RJU035T016-1	SOCKET(16P)	[M]
CN702	RJS1A6723-1Q	CONNECTOR(23P)	[M]
CN703	RJU071H09M	SOCKET(9P)	[M]
CP1, 2	RJT057W007-1	CONNECTOR(7P)	[M]
CP101, 102	RJT071H09A	CONNECTOR(9P)	[M]
CP503, 504	RJT057W012-1	CONNECTOR(12P)	[M]
CP703	RJT071H09A	CONNECTOR(9P)	[M]
CP801	RJT057W009-1	CONNECTOR(9P)	[M]
CP802	RJT057W008-1	CONNECTOR(8P)	[M]
CP901	RJU057W009	SOCKET(9P)	[M]
CP902	RJU057W008	SOCKET(8P)	[M]
CS101, 102	RJS1A6805	CONNECTOR(5P)	[M]
CS951	RJU071H09M	SOCKET(9P)	[M]
CS971	RJU071H09M	SOCKET(9P)	[M]
		EARTH PLATE(S)	
E500	SNE1004-2	EARTH PLATE	[M]
		FUSE HOLDER(S)	
FC501, 502	EYF52BC	FUSE HOLDER	[M]
		RELAY(S)	
RLY501, 502	RSY0019M-0	RELAY	[M](P)
RLY501, 502	RSY0021-0	RELAY	[M](PC)
RLY503	RSY0017M-0	RELAY	[M]
		CHECKER CHIP(S)	
TJ701, 702	EYF8CU	CHECKER CHIP	[M]
		JACK(S) AND TERMINAL(S)	
HP701	RJJ37TK07-H	HEADPHONES	[M]

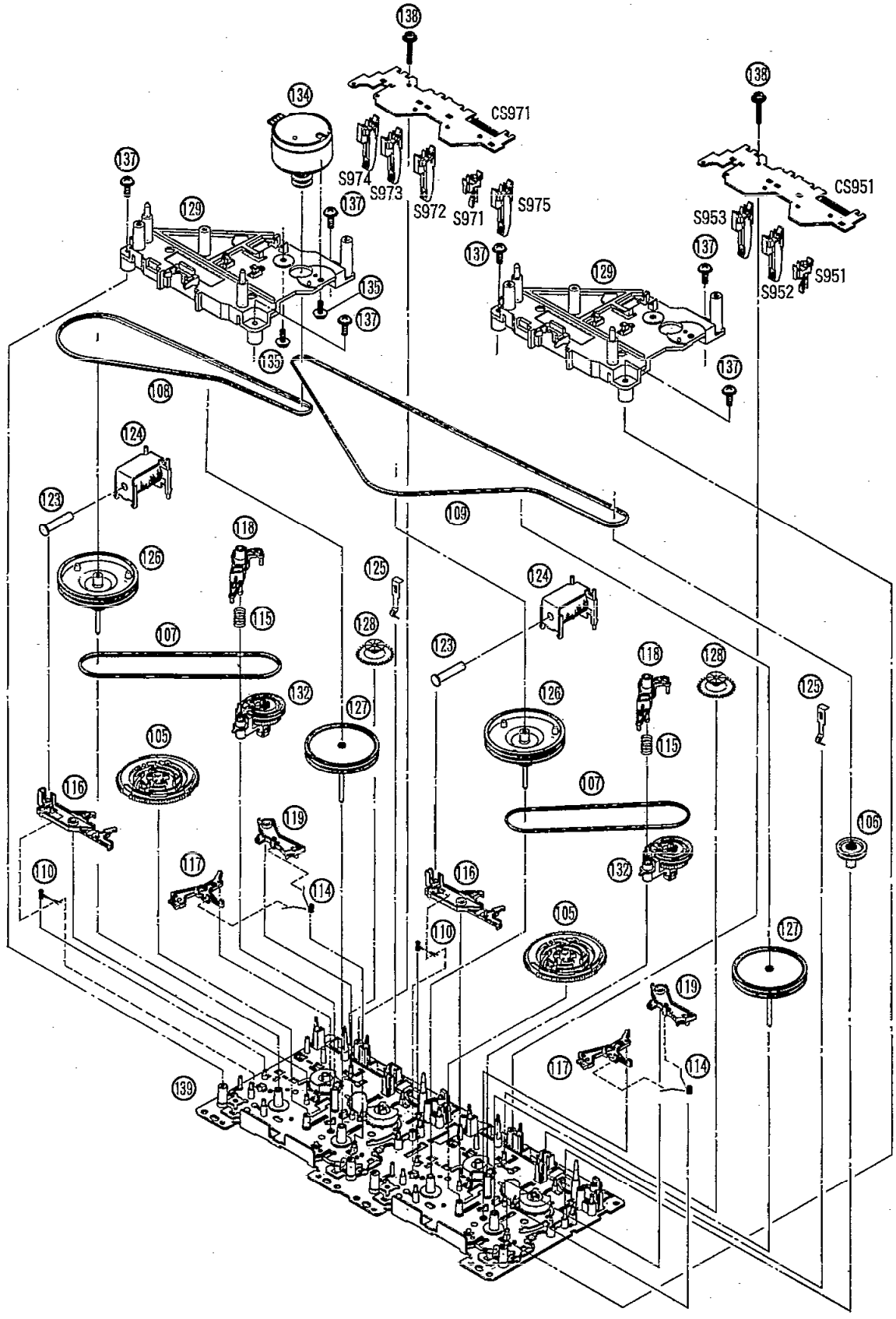
Ref. No.	Part No.	Part Name & Description	Remarks
JK101	RJH5404M	ANTENNA TERMINAL	[M]
JK301	RJH2206	AUX	[M]
JK500	SJSD16-1	AC INLET	[M]
JK501	RJH2201MS	SPEAKER(LOW) TERMINAL	[M]
JK502	RJR0054	SPEAKER(HIGHT) TERMINAL	[M]
JK503	SJF3068-12N	SURROUND SPEAKER	[M]
		FLAT CABLE(S) AND WIRE UNIT	
W100	RWJ0210260RX	FLAT CABLE(10P)	[M]
W101	REZ0870	WIRE UNIT(8P)	[M]
W200	RWJ0104065CK	FLAT CABLE(4P)	[M]
W501	RWJ6205350QX	FLAT CABLE(5P)	[M]
W502	RWJ6208350QX	FLAT CABLE(8P)	[M]
W701	RWJ1109180RR	FLAT CABLE(9P)	[M]
W702	RWJ1111180RR	FLAT CABLE(11P)	[M]
W703	RWJ1104180RR	FLAT CABLE(4P)	[M]
		FUSE PROTECTOR(S)	
R951, 952	RSFMB40KT-L	FUSE PROTECTOR	[M]⚠

Ref. No.	Part No.	Part Name & Description	Remarks
		DECK MECHANISM	
101	RED0043	P. B. HEAD BLOCK (DECK2)	[M]
101-1	RHE5152ZB	SCREW	[M]
102	RED0038	R/P HEAD BOLCK (DECK1)	[M]
102-2	RHE5152ZB	SCREW	[M]
103	RDG0300	REEL BASE GEAR	[M]
104	RDG0301	WINDING RELAY GEAR	[M]
105	RDK0026	MAIN GEAR	[M]
106	RDR0029	RELAY PULLAY	[M]
107	RDV0033-1	WINDING BELT	[M]
108	RDV0034	CAPSTAN BELT(A)	[M]
109	RDV0035	CAPSTAN BELT(B)	[M]
110	RUW147ZA	SPRING	[M]
111	RMB0400	REEL SPRING	[M]
112	RMB0403	HEAD PANEL SPRING	[M]
113	RMB0404	BRAKE ROD SPRING	[M]
114	RMB0406	FR LEVER SPRING	[M]
115	RMB0408	THRUST SPRING	[M]
116	RML0370	TRIGGER LEVER	[M]
117	RML0371	FR LEVER	[M]
118	RML0372	WINDING LEVER	[M]
119	RML0374	EJECT LEVER	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
120	RMM0131	BRAKE ROD	[M]
121	RMM0133	EJECT ROD	[M]
122	RMQ0519	REEL HUB	[M]
123	RMS0398-1	MOVING CORE	[M]
124	RSJ0003	PLUNGER	[M]
125	RUS609ZC	PACK SPRING	[M]
126	RXF0049	FLYWHEEL(F) ASS'Y	[M]
127	RXF0050	FLYWHEEL(R) ASS'Y	[M]
128	RXG0040	FF RELAY GEAR ASS'Y	[M]
129	RMK0283	SUB-CHASSIS	[M]
130	RXL0124	PINCH ROLLER(F) ASS'Y	[M]
130-1	RMB0401	PINCH ARM SPRING(F)	[M]
131	RXL0125	PINCH ROLLER(R) ASS'Y	[M]
131-1	RMB0402	PINCH ARM SPRING(R)	[M]
132	RXL0126	WINDING ARM ASS'Y	[M]
133	RXQ0412	HEAD PANEL ASS'Y	[M]
133-1	RMB0405	F.R ROD SPRING	[M]
133-2	RMM0132	RF ROD	[M]
134	REM0055-1	CAPSTAN MOTOR ASS'Y	[M]
135	RHD26022	SCREW	[M]
136	XTW2+5L	SCREW	[M]
137	XTW26+10S	SCREW	[M]
138	XYC2+JF17	SCREW	[M]
139	RFKJXED70-K	CHASSIS ASS'Y	[M]

■ Mechanism Parts Location




CS971
CS951
S974
S973
S972
S971
S975
S953
S952
S951

■ Replacement Parts list (Loading)

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
* Warning: This product uses a laser diode. Refer to caution statements on page 2.
* [M] indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		LOADING MECHANISM	
201	RFKPLMC50PAK	LOADING MOTOR(M501) ASS'Y	[M]
202	RFKPLMC50PBK	SLIDE MOTOR(M511) ASS'Y	[M]
203	RDG0336	PULLEY GEAR	[M]
204	RDG0337	REDUCTION GEAR(A)	[M]
205	RDG0338	REDUCTION GEAR(B)	[M]
206	RDG0339	DRIVE GEAR	[M]
207	RDG0340	SLIDE PULLEY GEAR	[M]
208	RDG0341	COUNT RING	[M]
209	RDG0342	SLIDE REDUCTION GEAR	[M]
210	RDG0343	REAR SLIDE GEAR	[M]
211	RDG0344	SLIDE GEAR(A)	[M]
212	RDG0345	SLIDE GEAR(B)	[M]
213	RDG0346	FRONT SLIDE GEAR	[M]
214	RDG0347	LOWER SLIDE GEAR	[M]
215	RDP0080	UPPER SLIDE ROLLER	[M]
216	RDP0081	LOWER SLIDE ROLLER	[M]
217	RDP0082	ROPE ROLLER(A)	[M]
218	RDP0083	ROPE ROLLER(B)	[M]
219	RDV0041	LOADING BELT	[M]
220	RDV0046	SLIDE BELT	[M]
221	RMN0399	SENSOR HOLDER	[M]
222	RMN0358	L. E. D. HOLDER	[M]
223	RMN0356	MOTOR HOLDER	[M]
224	REZ0916	FFC(23P)	[M]
225	REZ0832	FLAT CABLE(7P)	[M]
226	RHW21009	WASHER	[M]
227	RMB0453	FEED LEVER SPRING	[M]
228	RMB0483	LOCK CANCELLATION SPRING	[M]
229	RME0194	SUB LEVER SPRING	[M]
230	RME0195	SIZE LEVER SPRING	[M]
231	RME0196	RETURN LEVER SPRING	[M]
232	RME0197	CLAMP SPRING	[M]
233	RME0254	SHUTTER LEVER SPRING	[M]
234	RML0411	CONNECTION LEVER	[M]
235	RML0412	FRONG FEED LEVER	[M]
236	RML0413	FEED SUB LEVER	[M]
237	RML0414	GUIDE LEVER	[M]
238	RML0415	REAR FEED LEVER	[M]
239	RML0416	SEZE DETECTION LEVER	[M]
240	RML0417	RETURN LEVER(A)	[M]
241	RML0418	RETURN LEVER(B)	[M]
242	RFKNLMC50PBK	MECHANISM BASE ASS'Y	[M]
243	RMR0921-K	LOWER SLIDE PLATE	[M]
244	RMR0922-K	UPPER SLIDE PLATE	[M]
245	RMR0923-W	SLIDE SUPPORT PLATE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
246	RMR0924-K	DISC GUIDE(L)	[M]
247	RMR0925-K	DISC GUIDE(R)	[M]
248	RMR0927-K	ROLLER BASE	[M]
249	RMS0519	CONNECTION SHAFT	[M]
250	RHM245ZA	MAGNET	[M]
251	RMR0334	FIXED PLATE	[M]
252	RMR0761-W	CLAMPER	[M]
253	RMR0926-K	CLAMP PLATE	[M]
254	RDP0091	DISC ROLLER	[M]
255	RDP0092	GUIDE ROLLER	[M]
256	XTBS26+10J	SCREW	[M]
257	XTWS3+10T	SCREW	[M]
258	RDG0333	FRONT LOCK GEAR	[M]
259	RDG0334	REAR LOCK GEAR	[M]
260	RDG0374	LOWER LOCK GEAR	[M]
261	RMA0904	SIDE PLATE(L)	[M]
262	RMA0905	SIDE PLATE(R)	[M]
263	RMA0906	UPPER RAIL	[M]
264	RMA0907	LOWER RAIL	[M]
265	RMA0908	REAR SUPPORT PLATE	[M]
266	RMB0469	LOCK ARM SPRING	[M]
267	RML0421	STAY LOCK ARM	[M]
268	RMF0237-1	GUIDE FELT	[M]
269	RML0437	REAR LOCK PLATE	[M]
270	RMR0959-K	ROPE GUIDE	[M]
271	RMW0009	GIARD ROPE	[M]
272	RDG0183	DAMPER GEAR	[M]
273	RHW42002	WASHER	[M]
274	RFKNAAK70PAK	DISC STOCKER(A) ASS'Y	[M]
275	RFKNAAK70PBK	DISC STOCKER(B) ASS'Y	[M]
276	RMA1046	FRONT STCKER STAND	[M]
277	RMA0911	REAR STOCKER STAND	[M]
278	RML0483	SHUTTER LEVER(S)	[M]
279	RMR1067-K	SHUTTER(S)	[M]
280	RMB0454	GUARD ROPE SPRING	[M]
281	RMR1066-K	SHUTTER SUPPORT(L)	[M]
282	RMR0933-K	SHUTTER SUPPORT(R)	[M]
283	RMR0948-H	STOCKER SEPARATION PLATE	[M]
284	XTB3+6F	SCREW	[M]
285	RFKNLMC50PEK	EJECT PUSH LEVER ASS'Y	[M]
286	RMC0291	EJECT CLICK SPRING	[M]
287	RME0203	EJECT SLIDE SPRING	[M]
288	XTV2+6G	SCREW	[M]
289	XTN2+6G	SCREW	[M]
290	RML0439	EJECT SLIDE PLATE	[M]
291	RMR1069-K	EJECT BASE(S)	[M]
292	RMS0123-1	TRAVERSE FIXED PIN	[M]
293	RMR1068-K	EJECT LEVER(S)	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
294	RMR0937-K	TRAVERSE CHASSIS	[M]
295	RML0424	REAR SUPPORT ARM	[M]
296	RMR0958-K	EJECT GUIDE	[M]
297	RME0225	LOCK PLATE SPRING	[M]
298	RMR0965-K	EJECT PAD(B)	[M]
299	SFYB5-32	STEEL BALL	[M]
300	XTN2+6JFZ	SCREW	[M]
301	RAE0150Z	TRAVERSE DECK	[M]⚠
301-1	SHGD113-1	FLOATING RUBBER	[M]
301-2	SNSD38	SCREW	[M]
302	RMB0455	FRONT SUPPORT SPRING	[M]
303	RML0423	FRONT SUPPORT ARM	[M]

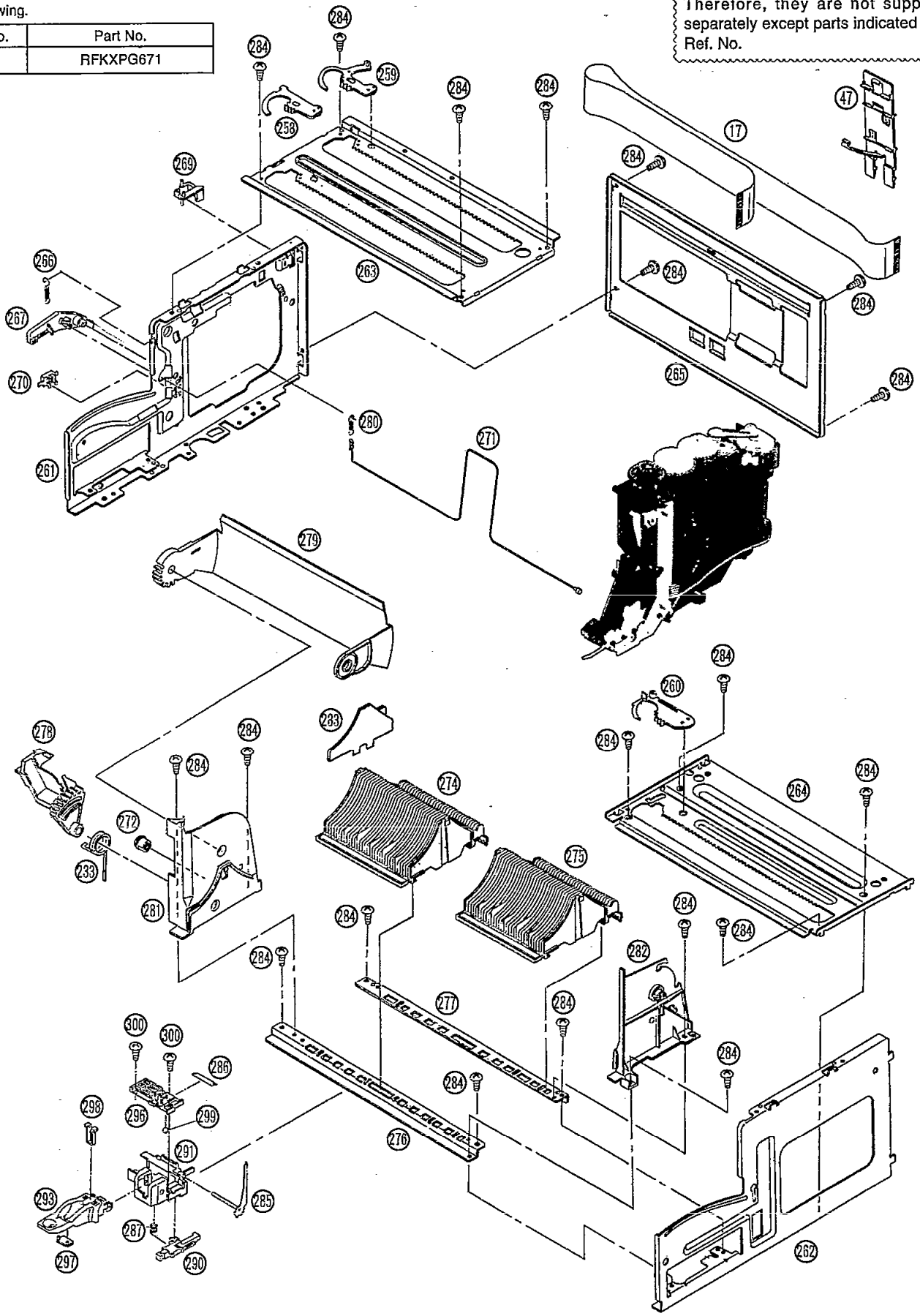
Ref. No.	Part No.	Part Name & Description	Remarks

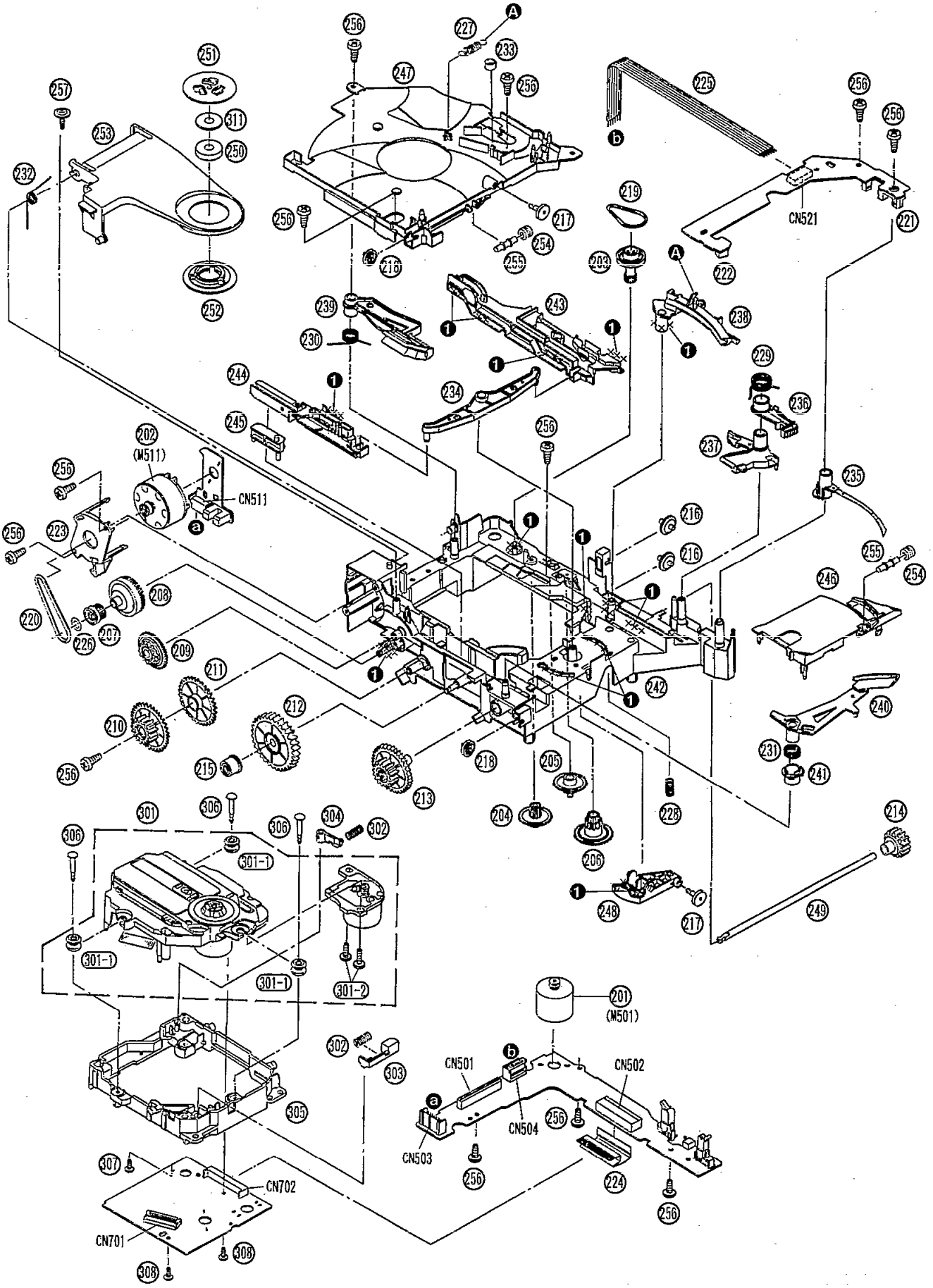
■ Loading Parts Location

Note: When changing loading mechanism parts, apply the specified grease to the areas marked "XX" as shown in the drawing.

Ref. No.	Part No.
❶	RFKXPG671

The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately except parts indicated with Ref. No.




CN511
CN521
CN501
CN502
CN503
CN504
CN701
CN702
(M511)
(M501)

■ Resistors and Capacitors

Notes: * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise. 1K=1,000 (OHM), 1M=1,000k (OHM)
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.) Parts without these indications can be used for all areas.
* [M] indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1, 2	ERDS2FJ104	1/4W 100K [M]
R3	ERDS2FJ221	1/4W 220 [M]
R4	ERDS2FJ104	1/4W 100K [M]
R5	ERDS2FJ564	1/4W 560K [M]
R6	ERDS2FJ391	1/4W 390 [M]
R7	ERDS2FJ272	1/4W 2.7K [M]
R8	ERDS2FJ684	1/4W 680K [M]
R9	ERDS2FJ391	1/4W 390 [M]
R10	ERDS2FJ391	1/4W 390 [M]
R11	ERDS2FJ684	1/4W 680K [M]
R101	ERDS2FJ334	1/4W 330K [M]
R102	ERDS2FJ104	1/4W 100K [M]
R103*1	ERDS2FJ153	1/4W 15K [M]
R103*2	ERDS2FJ271	1/4W 270 [M]
R104*1	ERDS2FJ153	1/4W 15K [M]
R104*2	ERDS2FJ822	1/4W 8.2K [M]
R105*1	ERDS2FJ271	1/4W 270 [M]
R105*2	ERDS2FJ471	1/4W 470 [M]
R106*1	ERDS2FJ222	1/4W 2.2K [M]
R106*2	ERDS2FJ474	1/4W 470K [M]
R107*1	ERDS2FJ330	1/4W 33 [M]
R107*2	ERDS2FJ331	1/4W 330 [M]
R108*1	ERDS2FJ330	1/4W 33 [M]
R108*2	ERDS2FJ474	1/4W 470K [M]
R109*1	ERDS2FJ432	1/4W 4.3K [M]
R109*2	ERDS2FJ331	1/4W 330 [M]
R110*2	ERDS2FJ102	1/4W 1K [M]
R110*1	ERDS2FJ432	1/4W 4.3K [M]
R111	ERDS2FJ222	1/4W 2.2K [M]
R112*1	ERDS2FJ222	1/4W 2.2K [M]
R112*2	ERDS2FJ104	1/4W 100K [M]
R113*1	ERDS2FJ122	1/4W 1.2K [M]
R113*2	ERDS2FJ103	1/4W 10K [M]
R114*1	ERDS2FJ122	1/4W 1.2K [M]
R114*2	ERDS2FJ562	1/4W 5.6K [M]
R115*1	ERDS2FJ474	1/4W 470K [M]
R115*2	ERDS2FJ561	1/4W 560 [M]
R116*1	ERDS2FJ474	1/4W 470K [M]
R116*2	ERDS2FJ102	1/4W 1K [M]
R117*1	ERDS2FJ274	1/4W 270K [M]
R117*2	ERDS2FJ273	1/4W 27K [M]
R118*1	ERDS2FJ274	1/4W 270K [M]
R118*2	ERDS2FJ562	1/4W 5.6K [M]
R119	ERDS2FJ682	1/4W 6.8K [M]
R120	ERDS2FJ473	1/4W 47K [M]
R121*1	ERDS2FJ333	1/4W 33K [M]
R121*2	ERDS2FJ332	1/4W 3.3K [M]
R122*1	ERDS2FJ333	1/4W 33K [M]
R122*2	ERDS2FJ272	1/4W 2.7K [M]
R123	ERDS2FJ103	1/4W 10K [M]
R124*1	ERDS2FJ103	1/4W 10K [M]
R124*2	ERDS2FJ271	1/4W 270 [M]
R125*1	ERDS2FJ102	1/4W 1K [M]
R125*2	ERDS2FJ152	1/4W 1.5K [M]
R126*1	ERDS2FJ102	1/4W 1K [M]
R126*2	ERDS2FJ152	1/4W 1.5K [M]
R127*1	ERDS2FJ821	1/4W 820 [M]
R127*2	ERDS2FJ103	1/4W 10K [M]
R128*1	ERDS2FJ821	1/4W 820 [M]
R128*2	ERDS2FJ820	1/4W 82 [M]
R129	ERDS2FJ473	1/4W 47K [M]
R130	ERDS2FJ103	1/4W 10K [M]
R131	ERDS2FJ683	1/4W 68K [M]
R132*1	ERDS2TJ335T	1/4W 3.3M [M]
R132*2	ERDS2FJ103	1/4W 10K [M]
R133*1	ERDS2FJ332	1/4W 3.3K [M]
R133*2	ERDS2FJ102	1/4W 1K [M]
R134*1	ERDS2FJ474	1/4W 470K [M]
R134*2	ERDS2FJ102	1/4W 1K [M]
R135-137	ERDS2FJ102	1/4W 1K [M]
R138, 139	ERDS2FJ103	1/4W 10K [M]
R141, 142	ERDS2FJ682	1/4W 6.8K [M]
R143, 144	ERDS2FJ222	1/4W 2.2K [M]
R145, 146	ERDS2FJ103	1/4W 10K [M]
R149	ERDS2FJ680	1/4W 68 [M]
R151, 152	ERDS2FJ105	1/4W 1M [M]
R153, 154	ERDS2FJ122	1/4W 1.2K [M]
R155, 156	ERDS2FJ221	1/4W 220 [M]
R158	ERDS2FJ221	1/4W 220 [M]
R161, 162	ERDS2FJ472	1/4W 4.7K [M]
R165	ERDS2FJ563	1/4W 56K [M]
R166	ERDS2FJ104	1/4W 100K [M]
R167	ERDS2FJ470	1/4W 47 [M]
R170, 171	ERDS2FJ102	1/4W 1K [M]
R172*1	ERDS2FJ331	1/4W 330 [M]
R172*2	ERDS2FJ102	1/4W 1K [M]
R173*1	ERDS2FJ103	1/4W 10K [M]
R173*2	ERDS2FJ471	1/4W 470 [M]
R174	ERDS2FJ103	1/4W 10K [M]
R175	ERDS2FJ102	1/4W 1K [M]
R176	ERDS2TJ822T	1/4W 8.2K [M]
R177	ERDS2FJ472	1/4W 4.7K [M]
R178	ERDS2FJ1R2	1/4W 1.2 [M]
R179, 180	ERDS2FJ472	1/4W 4.7K [M]
R181	ERDS2FJ332	1/4W 3.3K [M]
R182	ERDS2FJ1R0	1/4W 1.0 [M]
R183, 184	ERDS2FJ104	1/4W 100K [M]
R186	ERDS2FJ102	1/4W 1K [M]
R188	ERDS2FJ102	1/4W 1K [M]
R189	ERDS2FJ472	1/4W 4.7K [M]
R190	ERDS2FJ104	1/4W 100K [M]
R191	ERDS2FJ563	1/4W 56K [M]
R192	ERDS2FJ470	1/4W 47 [M]
R195	ERDS2FJ104	1/4W 100K [M]
R196, 197	ERDS2FJ473	1/4W 47K [M]
R206	ERDS2FJ221	1/4W 220 [M]
R208, 209	ERDS2FJ123	1/4W 12K [M]
R210	ERDS2FJ272	1/4W 2.7K [M]
R211	ERDS2FJ334	1/4W 330K [M]
R212	ERDS2FJ123	1/4W 12K [M]
R213	ERDS2FJ152	1/4W 1.5K [M]
R215, 216	ERDS2FJ222	1/4W 2.2K [M]
R220	ERDS2FJ472	1/4W 4.7K [M]
R221	ERDS2FJ2R7	1/4W 2.7 [M]
R225	ERDS2FJ2R7	1/4W 2.7 [M]
R226, 227	ERDS2FJ102	1/4W 1K [M]
R230	ERDS2FJ472	1/4W 4.7K [M]
R231, 232	ERDS2FJ102	1/4W 1K [M]
R233	ERDS2FJ222	1/4W 2.2K [M]
R234-236	ERDS2FJ472	1/4W 4.7K [M]
R305, 306	ERDS2FJ103	1/4W 10K [M]
R307, 308	ERDS2FJ562	1/4W 5.6K [M]
R309, 310	ERDS2FJ474	1/4W 470K [M]
R311, 312	ERDS2FJ152	1/4W 1.5K [M]
R313, 314	ERDS2FJ562	1/4W 5.6K [M]
R316	ERDS2FJ103	1/4W 10K [M]
R317	ERDS2FJ223	1/4W 22K [M]
R318	ERDS2FJ103	1/4W 10K [M]
R319, 320	ERDS2FJ223	1/4W 22K [M]
R321, 322	ERDS2FJ102	1/4W 1K [M]
R323, 324	ERDS2FJ122	1/4W 1.2K [M]
R325, 326	ERDS2FJ222	1/4W 2.2K [M]
R327, 328	ERDS2FJ223	1/4W 22K [M]
R329, 330	ERDS2FJ561	1/4W 560 [M]
R331, 332	ERDS2FJ182	1/4W 1.8K [M]
R339, 340	ERDS2FJ332	1/4W 3.3K [M]
R341, 342	ERDS2FJ392	1/4W 3.9K [M]
R343, 344	ERDS2FJ472	1/4W 4.7K [M]
R345, 346	ERDS2FJ102	1/4W 1K [M]
R347, 348	ERDS2FJ473	1/4W 47K [M]
R349, 350	ERDS2FJ272	1/4W 2.7K [M]
R351, 352	ERDS2FJ153	1/4W 15K [M]
R353-356	ERDS2FJ390	1/4W 39 [M]
R357, 358	ERDS2FJ222	1/4W 2.2K [M]

Ref. No.	Part No.	Values & Remarks
R359, 360	ERDS2FJ682	1/4W 6.8K [M]
R361, 362	ERDS2FJ104	1/4W 100K [M]
R363	ERDS2FJ103	1/4W 10K [M]
R364	ERDS2FJ123	1/4W 12K [M]
R365	ERDS2FJ332	1/4W 3.3K [M]
R366	ERDS2FJ154	1/4W 150K [M]
R367	ERDS2FJ683	1/4W 68K [M]
R377	ERDS2FJ472	1/4W 4.7K [M]
R379	ERDS2FJ472	1/4W 4.7K [M]
R380-382	ERDS2FJ222	1/4W 2.2K [M]
R383	ERDS2FJ271	1/4W 270 [M]
R384	ERDS2FJ102	1/4W 1K [M]
R385	ERDS2FJ472	1/4W 4.7K [M]
R387, 388	ERDS2FJ102	1/4W 1K [M]
R389	ERDS2FJ222	1/4W 2.2K [M]
R391, 392	ERDS2FJ103	1/4W 10K [M]
R393, 394	ERDS2FJ563	1/4W 56K [M]
R395, 396	ERDS2FJ683	1/4W 68K [M]
R397	ERDS2FJ122	1/4W 1.2K [M]
R398	ERDS2FJ2R7	1/4W 2.7 [M]
R461	ERDS2FJ561	1/4W 560 [M]
R462	ERDS2FJ331	1/4W 330 [M]
R463, 464	ERDS2FJ821	1/4W 820 [M]
R465	ERDS2FJ561	1/4W 560 [M]
R466	ERDS2FJ152	1/4W 1.5K [M]
R467	ERDS2FJ102	1/4W 1K [M]
R468, 469	ERDS2FJ103	1/4W 10K [M]
R470	ERDS2FJ102	1/4W 1K [M]
R471-474	ERDS2FJ472	1/4W 4.7K [M]
R475	ERDS2FJ103	1/4W 10K [M]
R476	ERDS2FJ473	1/4W 47K [M]
R478	ERDS2FJ222	1/4W 2.2K [M]
R501, 502*3	ERDS1FJ270	1/2W 27 [M]⚠
R501, 502*9	ERDS1FJ103	1/4W 10K [M]
R503*3	ERDS2FJ332	1/4W 3.3K [M]
R503*4	ERDS2FJ103	1/4W 10K [M]
R504, 505	ERDS2FJ562	1/4W 5.6K [M]
R506	ERDS2FJ223	1/4W 22K [M]
R507	ERDS2FJ2R2	1/4W 2.2 [M]
R508	ERDS2FJ103	1/4W 10K [M]
R509	ERD2FCJ4R7	1/4W 4.7 [M]⚠
R510	ERDS1FJ561	1/2W 560 [M]⚠
R511	ERDS1FJ472	1/2W 4.7K [M]⚠
R512	ERDS2FJ680	1/4W 68 [M]
R513	ERDS2FJ561	1/4W 560 [M]
R514	ERDS1FJ6R8	1/2W 6.8 [M]⚠
R515	ERDS2FJ151	1/4W 150 [M]
R516	ERDS2FJ152	1/4W 1.5K [M]
R517, 518	ERDS1FJ180	1/2W 18 [M]⚠
R519	ERDS1FJ6R8	1/2W 6.8 [M]⚠
R520	ERDS2FJ332	1/4W 3.3K [M]
R521	ERDS2FJ561	1/4W 560 [M]

Ref. No.	Part No.	Values & Remarks
R522, 523	ERDS2FJ560	1/4W 56 [M]
R524, 525	ERDS2FJ272	1/4W 2.7K [M]
R526	ERDS2FJ391	1/4W 390 [M]
R527	ERDS2FJ560	1/4W 56 [M]
R528	ERDS2FJ561	1/4W 560 [M]
R529	ERDS1FJ150	1/2W 15 [M]⚠
R530-532	ERDS1FJ270	1/2W 27 [M]⚠
R533	ERDS2FJ182	1/4W 1.8K [M]
R534	ERDS2FJ151	1/4W 150 [M]
R535	ERD2FCJ4R7	1/4W 4.7 [M]⚠
R536	ERDS2FJ472	1/4W 4.7K [M]
R537	ERDS2FJ151	1/4W 150 [M]
R538	ERDS2FJ103	1/4W 10K [M]
R539*3	ERDS2FJ102	1/4W 1K [M]
R539*8	ERDS2FJ393	1/4W 39K [M]
R541	ERDS2FJ474	1/4W 470K [M]
R542	ERDS2FJ224	1/4W 220K [M]
R543	ERDS2FJ473	1/4W 47K [M]
R544, 545	ERDS1FJ560	1/2W 56 [M]⚠
R599	ERDS1TJ335-B	1/2W 3.3M [M]⚠(P)
R599	ERC12UGK335D	1/2W 3.3M [M]⚠(PC)
R601	ERDS2FJ272	1/4W 2.7K [M]
R602, 603	ERDS2FJ331	1/4W 330 [M]⚠
R605	ERDS2FJ104	1/4W 100K [M]
R606	ERDS2FJ272	1/4W 2.7K [M]
R607-610	ERDS2FJ153	1/4W 15K [M]
R611, 612	ERDS2FJ332	1/4W 3.3K [M]
R613, 614	ERDS2FJ272	1/4W 2.7K [M]
R617-620	ERDS2FJ563	1/4W 56K [M]
R623	ERDS2FJ684	1/4W 680K [M]
R624	ERDS2FJ103	1/4W 10K [M]
R626	ERDS2FJ124	1/4W 120K [M]
R627	ERDS2FJ154	1/4W 150K [M]
R628	ERDS2FJ184	1/4W 180K [M]
R629	ERDS2FJ124	1/4W 120K [M]
R631, 632	ERDS2FJ152	1/4W 1.5K [M]
R637	ERDS2FJ223	1/4W 22K [M]
R638	ERDS2FJ104	1/4W 100K [M]
R641, 642	ERDS1FJ100	1/2W 10 [M]⚠
R645, 646	ERDS1FJ100	1/2W 10 [M]⚠
R647, 648	ERD2FCJ4R7	1/4W 4.7 [M]⚠
R700	ERDS2FJ331	1/4W 330 [M]
R701*5	ERDS2FJ103	1/4W 10K [M]
R701*6	ERJ6GEYJ4R7V	1/10W 4.7 [M]
R702	ERDS2FJ101	1/4W 100 [M]
R703*5	ERDS2FJ330	1/4W 33 [M]
R703*6	ERJ6GEYJ823	1/10W 82K [M]
R704*5	ERDS2FJ101	1/4W 100 [M]
R704*6	ERJ6GEYJ102A	1/10W 1K [M]
R705*5	ERDS2FJ473	1/4W 47K [M]
R705*6	ERJ6GEYJ103V	1/10W 10K [M]
R706*5	ERDS2FJ103	1/4W 10K [M]

Ref. No.	Part No.	Values & Remarks
R706*6	ERJ6GEYJ102A	1/10W 1K [M]
R707*5	ERDS2FJ223	1/4W 22K [M]
R707*6	ERJ6GEYJ474V	1/10W 470K [M]
R708*5	ERDS2FJ224	1/4W 220K [M]
R708*6	ERJ6GEYJ154V	1/10W 150K [M]
R709*5	ERDS2FJ101	1/4W 100 [M]
R709*6	ERJ6GEYJ683V	1/10W 68K [M]
R710	ERDS2FJ103	1/4W 10K [M]
R711*5	ERDS2FJ102	1/4W 1K [M]
R711*6	ERJ6GEYJ154V	1/10W 150K [M]
R712*5	ERDS2FJ224	1/4W 220K [M]
R712*6	ERJ6GEYJ221V	1/10W 220 [M]
R713	ERDS2FJ101	1/4W 100 [M]
R714*5	ERDS2TJ106T	1/4W 10M [M]
R715	ERDS2FJ334	1/4W 330K [M]
R716	ERDS2FJ681	1/4W 680 [M]
R717*5	ERDS2FJ472	1/4W 4.7K [M]
R717*6	ERJ6GEYJ101V	1/10W 100 [M]
R718*5	ERDS2FJ472	1/4W 4.7K [M]
R718*6	ERJ6GEYJ101V	1/10W 100 [M]
R719, 720	ERDS2FJ223	1/4W 22K [M]
R721*5	ERDS2FJ101	1/4W 100 [M]
R721*6	ERJ6GEYJ101V	1/10W 100 [M]
R722*5	ERDS2FJ101	1/4W 100 [M]
R722*6	ERJ6GEYJ563V	1/10W 56K [M]
R723*5	ERDS2FJ104	1/4W 100K [M]
R723*6	ERJ6GEYJ182V	1/10W 1.8K [M]
R724*5	ERDS2FJ104	1/4W 100K [M]
R724*6	ERJ6GEYJ333V	1/10W 33K [M]
R725*5	ERDS2FJ104	1/4W 100K [M]
R725*6	ERJ6GEYJ472V	1/10W 4.7K [M]
R726*5	ERDS2FJ104	1/4W 100K [M]
R726*6	ERJ6GEYJ473V	1/10W 47K [M]
R727*5	ERDS2FJ104	1/4W 100K [M]
R727*6	ERJ6GEYJ822V	1/10W 8.2K [M]
R728*5	ERDS2FJ472	1/4W 4.7K [M]
R728*6	ERJ6GEYJ103V	1/10W 10K [M]
R729	ERDS2FJ104	1/4W 100K [M]
R730	ERDS2FJ223	1/4W 22K [M]
R731*5	ERDS2FJ473	1/4W 47K [M]
R731*6	ERJ6GEYJ822V	1/10W 8.2K [M]
R732	ERDS2FJ473	1/4W 47K [M]
R733, 734	ERDS2FJ103	1/4W 10K [M]
R735*5	ERDS2FJ103	1/4W 10K [M]
R735*6	ERJ6GEYJ101V	1/10W 100 [M]
R736*5	ERDS2FJ103	1/4W 10K [M]
R736*6	ERJ6GEYJ101V	1/10W 100 [M]
R737	ERDS2FJ101	1/4W 100 [M]
R738*5	ERDS2FJ101	1/4W 100 [M]
R738*6	ERJ6GEYJ223V	1/10W 22K [M]
R739, 740	ERDS2FJ101	1/4W 100 [M]
R741, 742	ERDS2FJ102	1/4W 1K [M]

Ref. No.	Part No.	Values & Remarks
R743	ERDS2FJ331	1/4W 330 [M]
R744*5	ERDS2FJ472	1/4W 4.7K [M]
R744*6	ERJ6GEYJ103V	1/10W 10K [M]
R745*5	ERDS2FJ472	1/4W 4.7K [M]
R745*6	ERJ6GEYJ155V	1/10W 1.5M [M]
R746, 747	ERDS2FJ271	1/4W 270 [M]
R748*5	ERDS2FJ271	1/4W 270 [M]
R748*6	ERJ6GEYJ182V	1/10W 1.8K [M]
R749*5	ERDS2FJ271	1/4W 270 [M]
R749*6	ERJ6GEYJ682V	1/10W 6.8K [M]
R750*5	ERDS2FJ271	1/4W 270 [M]
R750*6	ERJ6GEYJ473V	1/10W 47K [M]
R751*5	ERDS2FJ271	1/4W 270 [M]
R751*6	ERJ6GEYJ473V	1/10W 47K [M]
R752*5	ERDS2FJ472	1/4W 4.7K [M]
R752*6	ERJ8GEYJ220V	1/8W 22 [M]
R753*5	ERDS2FJ472	1/4W 4.7K [M]
R753*6	ERJ6GEYJ102A	1/10W 1K [M]
R754	ERDS2FJ472	1/4W 4.7K [M]
R755	ERDS2FJ103	1/4W 10K [M]
R756	ERDS2FJ473	1/4W 47K [M]
R757	ERDS2FJ223	1/4W 22K [M]
R759	ERDS2FJ221	1/4W 220 [M]
R760-762	ERDS2FJ271	1/4W 270 [M]
R763	ERDS2FJ271	1/4W 270 [M]
R764	ERDS2FJ151	1/4W 150 [M]
R765-768	ERDS2FJ471	1/4W 470 [M]
R769	ERDS2FJ271	1/4W 270 [M]
R770, 771	ERDS2FJ102	1/4W 1K [M]
R772	ERDS2FJ122	1/4W 1.2K [M]
R773	ERDS2FJ222	1/4W 2.2K [M]
R774	ERDS2FJ272	1/4W 2.7K [M]
R775, 776	ERDS2FJ102	1/4W 1K [M]
R777	ERDS2FJ122	1/4W 1.2K [M]
R778, 779	ERDS2FJ182	1/4W 1.8K [M]
R780	ERDS2FJ472	1/4W 4.7K [M]
R781	ERDS2FJ682	1/4W 6.8K [M]
R782	ERDS2FJ472	1/4W 4.7K [M]
R783	ERDS2FJ682	1/4W 6.8K [M]
R784	ERDS2FJ222	1/4W 2.2K [M]
R785	ERDS2FJ272	1/4W 2.7K [M]
R786	ERDS2FJ102	1/4W 1K [M]
R787	ERDS2FJ122	1/4W 1.2K [M]
R788-790	ERDS2FJ102	1/4W 1K [M]
R791	ERDS2FJ122	1/4W 1.2K [M]
R792	ERDS2FJ182	1/4W 1.8K [M]
R793	ERDS2FJ222	1/4W 2.2K [M]
R794	ERDS2FJ272	1/4W 2.7K [M]
R795	ERDS2FJ471	1/4W 470 [M]
R796, 797	ERDS2FJ473	1/4W 47K [M]
R798	ERDS2FJ221	1/4W 220 [M]
R799	ERDS2FJ104	1/4W 100K [M]
R831	ERDS2FJ102	1/4W 1K [M]
R832, 833	ERDS2FJ473	1/4W 47K [M]
R901, 902	ERDS2FJ104	1/4W 100K [M]
R903	ERDS2FJ101	1/4W 100 [M]
R905, 906	ERDS2FJ222	1/4W 2.2K [M]
R907, 908	ERDS2FJ682	1/4W 6.8K [M]
R909, 910	ERDS2FJ392	1/4W 3.9K [M]
R911, 912	ERDS2FJ103	1/4W 10K [M]
R913, 914	ERDS2FJ104	1/4W 100K [M]
R915, 916	ERDS2FJ102	1/4W 1K [M]
R925, 926	ERDS2FJ274	1/4W 270K [M]
R927, 928	ERDS2FJ183	1/4W 18K [M]
R929, 930	ERDS2FJ103	1/4W 10K [M]
R931-934	ERDS2FJ104	1/4W 100K [M]
R935, 936	ERDS2FJ331	1/4W 330 [M]
R937	ERDS2FJ151	1/4W 150 [M]
R938	ERDS2FJ152	1/4W 1.5K [M]
R952	ERDS2FJ821	1/4W 820 [M]
R953	ERDS2FJ393	1/4W 39K [M]
R972	ERDS2FJ821	1/4W 820 [M]
R973	ERDS2FJ393	1/4W 39K [M]
		CHIP JUMPER(S)
RJ701-704	ERJ8GEY0R00A	CHIP JUMPER[M]
RJ707	ERJ8GEY0R00A	CHIP JUMPER[M]
RJ709	ERJ8GEY0R00A	CHIP JUMPER[M]
RJ714-717	ERJ8GEY0R00A	CHIP JUMPER[M]
RJ719	ERJ8GEY0R00A	CHIP JUMPER[M]
RJ721	ERJ6GEY0R00A	CHIP JUMPER[M]
RJ722	ERJ8GEY0R00A	CHIP JUMPER[M]
RJ723, 724	ERJ6GEY0R00A	CHIP JUMPER[M]
RJ726-732	ERJ6GEY0R00A	CHIP JUMPER[M]
R714*6	ERJ6GEY0R00A	CHIP JUMPER[M]
		CAPACITORS
C1	ECBT1H5R6KC5	50V 5.6P [M]
C2	ECBT1H102KB5	50V 1000P [M]
C3	ECBT1H2R2KC5	50V 2.2P [M]
C4	ECBT1H181KB5	50V 180P [M]
C5	ECBT1H5R6KC5	50V 5.6P [M]
C6	ECBT1H3R3KC5	50V 3.3P [M]
C7	ECBT1H4R7KC5	50V 4.7P [M]
C8	ECBT1H3R3KC5	50V 3.3P [M]
C9	ECBT1H2R2KC5	50V 2.2P [M]
C10	ECBT1H180JC5	50V 18P [M]
C11	ECBT1H102KB5	50V 1000P [M]
C101*1	ECBT1C103NS5	50V 1000P [M]
C101*2	ECBT1C103NS5	16V 0.01U [M]
C102	ECBT1H102KB5	50V 1000P [M]
C103*1	ECBA1H681KB5	50V 680P [M]
C103*2	ECBT1C103NS5	16V 0.01U [M]
C104*1	ECFR1C223MR	16V 0.022U [M]
C104*2	ECBT1H102KB5	50V 1000P [M]
C105*1	ECBA1H681KB5	50V 680P [M]
C105*2	ECBT1H102KB5	50V 1000P [M]
C106*1	ECBA1H681KB5	50V 680P [M]
C106*2	ECBT1C103NS5	16V 0.01U [M]
C107	ECBT1H473ZF5	50V 0.047U [M]
C108*1	ECEA1CKA330B	16V 33U [M]
C108*2	ECBT1H8R2CC5	50V 8.2P [M]
C109*1	ECEA1CKA101B	16V 100U [M]
C109*2	ECBT1C103NS5	16V 0.01U [M]
C110	ECBT1C103NS5	16V 0.01U [M]
C111*1	ECBT1H561KB5	50V 560P [M]
C111*2	ECEA1EKA4R7B	25V 4.7U [M]
C112*1	ECBT1H561KB5	50V 560P [M]
C112*2	ECBT1C103NS5	16V 0.01U [M]
C113*1	ECEA0JKA221B	6.3V 220U [M]
C113*2	ECBT1H102KB5	50V 1000P [M]
C114*1	ECEA0JKA221B	6.3V 220U [M]
C114*2	ECEA1HKA3R3B	50V 3.3U [M]
C115*1	ECFR1C333JR	16V 0.033U [M]
C115*2	ECEA1EKA4R7B	25V 4.7U [M]
C116*1	ECFR1C333JR	16V 0.033U [M]
C116*2	ECBT1C822KS5	16V 8200P [M]
C117*1	ECEA1HKA010B	50V 1U [M]
C117*2	ECQB1H102JF3	50V 1000P [M]
C118*1	ECEA1HKA010B	50V 1U [M]
C118*2	ECFR1C153KR	16V 0.015U [M]
C119*1	ECEA1HKA4R7B	50V 4.7U [M]
C119*2	ECFR1C153KR	16V 0.015U [M]
C120*1	ECEA1HKA4R7B	50V 4.7U [M]
C120*2	ECEA1HKA010B	50V 1U [M]
C121*1	ECEA1HKA010B	50V 1U [M]
C121*2	ECEA1HKA010B	50V 1U [M]
C122*1	ECEA1HKA010B	50V 1U [M]
C122*2	ECEA1HKA2R2B	50V 2.2U [M]
C123*1	ECBT1H102KB5	50V 1000P [M]
C123*2	ECEA1HKA010B	50V 1U [M]
C124*1	ECBT1H102KB5	50V 1000P [M]
C124*2	ECBT1H102KB5	50V 1000P [M]
C125*1	ECFR1C473MR	16V 0.047U [M]
C125*2	ECBT1H150JC5	50V 15P [M]
C126*1	ECFR1C473MR	16V 0.047U [M]
C126*2	ECBT1H473ZF5	50V 0.047U [M]
C127*1	ECBT1C103MS5	16V 0.01U [M]
C127*2	ECEA1CKA220B	16V 22U [M]
C128*1	ECBT1C103MS5	16V 0.01U [M]
C128*2	ECBT1H102KB5	50V 1000P [M]
C129*1	ECBT1H821KB5	50V 820P [M]
C129*2	ECEA0JKA101B	6.3V 100U [M]
C130*1	ECBT1H821KB5	50V 820P [M]

Ref. No.	Part No.	Values & Remarks
C130*2	ECEA0JKA101B	6.3V 100U [M]
C131	ECBT1H821KB5	50V 820P [M]
C132*1	ECBT1H821KB5	50V 820P [M]
C132*2	ECBT1H102KB5	50V 1000P [M]
C133*1	ECEA1HKA4R7B	50V 4.7U [M]
C133*2	ECBT1H150JC5	50V 15P [M]
C134*1	ECEA1HKA4R7B	50V 4.7U [M]
C134*2	ECBT1H180JC5	50V 18P [M]
C135, 136	ECBT1H102KB5	50V 1000P [M]
C137, 138	ECFR1C183KR	16V 0.018U [M]
C139	ECEA1HKA2R2B	50V 2.2U [M]
C140	ECEA1CKA100B	16V 10U [M]
C141*1	ECEA1HKA0R1B	50V 0.1U [M]
C141*2	ECEA1HKA010B	50V 1U [M]
C142*1	ECFR1C223MR	16V 0.022U [M]
C142*2	ECEA1HKA010B	50V 1U [M]
C143, 144	ECEA1HKA4R7B	50V 4.7U [M]
C145*1	ECEA1CKA100B	16V 10U [M]
C145*2	ECBT1H220JC5	50V 22P [M]
C146	ECEA1CKA100B	16V 10U [M]
C147	ECBT1C152KR5	16V 1500P [M]
C148*1	ECBT1C152KR5	16V 1500P [M]
C148*2	ECBT1C103MS5	16V 0.01U [M]
C149	ECBT1H104ZF5	50V 0.1U [M]
C150	ECEA1AKA470B	10V 47U [M]
C151, 152	ECEA1CKA100B	16V 10U [M]
C153, 154	ECBT1H102KB5	50V 1000P [M]
C162	ECEA1CKA101B	16V 100U [M]
C165, 166	ECEA1CKA100B	16V 10U [M]
C171, 172	ECBT1H102KB5	50V 1000P [M]
C173*1	ECBT1C103MS5	16V 0.01U [M]
C173*2	ECEA1CKA220B	16V 22U [M]
C174*1	ECEA1HKA4R7B	50V 4.7U [M]
C174*2	ECEA1CKA100B	16V 10U [M]
C175	ECEA1VU221	35V 220U [M]
C176	ECQV1H473JZ3	50V 0.047U [M]
C177, 178	ECBT1H102KB5	50V 1000P [M]
C179-181	ECBT1C103MS5	16V 0.01U [M]
C182	ECEA1HKA4R7B	50V 4.7U [M]
C183	ECQV1H474JZ3	50V 0.47U [M]
C184	ECQP1152JZT	50V 1500P [M]
C185	ECQP2A472JZT	100V 4700P [M]
C186	ECEA1AKA470B	10V 47U [M]
C187, 188	ECBT1H101KB5	50V 100P [M]
C193, 194	ECBT1H102KB5	50V 1000P [M]
C196	ECBT1H102KB5	50V 1000P [M]
C201	ECEA1CKA101B	16V 100U [M]
C202	ECBT1H104ZF5	50V 0.1U [M]
C303, 304	ECBT1H101KB5	50V 100P [M]
C305, 306	ECBT1H104ZF5	50V 0.1U [M]
C307, 308	ECBT1H221KB5	50V 220P [M]
C309	ECBT1H102KB5	50V 1000P [M]
C310	ECQV1H154JZ3	50V 0.15U [M]
C311, 312	ECEA1HKA010B	50V 1U [M]
C313, 314	ECEA1HKAR22B	50V 0.22U [M]
C315, 316	ECFR1C473KR	16V 0.047U [M]
C317, 318	ECEA1HKAR22B	50V 0.22U [M]
C319-322	ECFR1C223KR	16V 0.022U [M]
C323, 324	ECBT1C332KR5	16V 3300P [M]
C325, 326	ECBT1C682KR5	16V 6800P [M]
C327, 328	ECBT1H102KB5	50V 1000P [M]
C329, 330	ECBT1C332KR5	16V 3300P [M]
C331, 332	ECQV1H333JM3	50V 0.033U [M]
C333, 334	ECBA1H681KB5	50V 680P [M]
C335, 336	ECBT1H102KB5	50V 1000P [M]
C339, 340	ECEA1EKA4R7B	25V 4.7U [M]
C341, 342	ECBT1H102KB5	50V 1000P [M]
C343, 344	ECBT1H471KB5	50V 470P [M]
C345, 346	ECEA1HKA4R7B	50V 4.7U [M]
C347, 348	ECEA1HKA010B	50V 1U [M]
C349, 350	ECEA1CKA100B	16V 10U [M]
C351, 352	ECBT1H101KB5	50V 100P [M]
C353, 354	ECBT1H151KB5	50V 150P [M]
C355, 356	ECBT1E103ZF	25V 0.01U [M]
C357, 358	ECBT1H332KR5	50V 3300P [M]
C359, 360	ECEA1CKA100B	16V 10U [M]
C368	ECBT1H102KB5	50V 1000P [M]
C369, 370	ECEA1AKA220B	10V 22U [M]
C371-373	ECBT1H104ZF5	50V 0.1U [M]
C374-376	ECBT1H470J5	50V 47P [M]
C379, 380	ECEA1CKA100B	16V 10U [M]
C381-384	ECBT1H102KB5	50V 1000P [M]
C385, 386	ECBT1E103ZF	25V 0.01U [M]
C390	ECEA1HKA3R3B	50V 3.3U [M]
C391, 392	ECQV1H683JZ3	50V 0.068U [M]
C393, 394	ECBT1H101KB5	50V 100P [M]
C395	ECBT1H221KB5	50V 220P [M]
C461	ECEA1AKA470B	10V 47U [M]
C462	ECBT1C103NS5	16V 0.01U [M]
C463	ECEA0JKA101B	6.3V 100U [M]
C464	ECBT1H102KB5	50V 1000P [M]
C465-468	ECBT1C103NS5	16V 0.01U [M]
C469	ECBT1H104ZF5	50V 0.1U [M]
C470	ECBT1C103NS5	16V 0.01U [M]
C501*4	ECBT1H221KB5	50V 220P [M]
C501*3	ECQE1104KF3	100V 0.1U [M]
C502	ECQE1104KF3	100V 0.1U [M]
C504-507	ECA1VM562E	35V 5600U [M]⚠
C508	ECA1EM222E	25V 2200U [M]⚠
C509, 510	ECKR1H103ZF5	50V 0.01U [M]
C511	ECBT1H473ZF5	50V 0.047U [M]
C512	ECA1HM470B	50V 47U [M]
C513	ECBT1H102KB5	50V 1000P [M]
C514	ECEA1CKA330B	16V 33U [M]
C515	ECBT1H102KB5	50V 1000P [M]
C516	ECEA1AKA220B	10V 22U [M]
C517	ECBT1E103ZF	25V 0.01U [M]
C518	ECEA1CKA470B	16V 47U [M]
C519, 520	ECBT1E103ZF	25V 0.01U [M]
C521	ECEA1CKA330B	16V 33U [M]
C522	ECA1VM101B	35V 220U [M]
C523	ECA1EM102B	25V 1000U [M]
C524	ECBT1E103ZF	25V 0.01U [M]
C525	ECEA1AKA330B	10V 33U [M]
C526	ECBT1E103ZF	25V 0.01U [M]
C527	ECEA1CKA100B	16V 10U [M]
C528	ECEA1HKA4R7B	50V 4.7U [M]
C529*3	ECBT1E223ZF	25V 0.022U [M]
C529*8	ECA1VM221B	35V 220U [M]
C530	ECA2AM101B	100V 100U [M]⚠
C531	ECKR2H102ZF5	500V 1000P [M]
C532	ECEA1HKA100B	50V 10U [M]
C533	ECKR2H102ZF5	500V 1000P [M]
C534	ECEA0JKA470B	6.3V 47U [M]
C535	ECBT1E103ZF	25V 0.01U [M]
C601	ECBT1H104ZF5	50V 0.1U [M]
C603	ECBT1H102KB5	50V 1000P [M]
C606	ECA1JM330B	63V 33U [M]
C607-610	ECBT1H471KB5	50V 470P [M]
C611, 612	ECBT1H150JC5	50V 15P [M]
C613, 614	ECBT1H220JC5	50V 22P [M]
C615	ECKR1H103ZF5	50V 0.01U [M]
C616	ECA1JM330B	63V 33U [M]
C617	ECEA1HKNR47B	50V 0.47U [M]
C618	ECEA1CKA100B	10V 10U [M]
C619, 620	ECBT1H473ZF5	50V 0.047U [M]
C624, 625	ECBT1H473ZF5	50V 0.047U [M]
C630, 631	ECBT1C103NS5	16V 0.01U [M]
C640	ECBT1H473ZF5	50V 0.047U [M]
C641, 642	ECBT1H104ZF5	50V 0.1U [M]
C651	ECA2AM100B	100V 10U [M]
C700	ECEA0JKA101B	6.3V 100U [M]
C701*5	ECBT1H104ZF5	50V 0.1U [M]
C701*6	ECEA0JKA330I	6.3V 33U [M]
C702*5	ECEA0JU102	6.3V 1000U [M]
C702*6	ECUZNE104MBN	25V 0.1U [M]
C703*5	ECBT1H102KB5	50V 1000P [M]
C703*6	ECEA0JKA101I	6.3V 100U [M]
C704*5	ECEA0JU102	6.3V 1000U [M]
C704*6	ECUZNE104MBN	25V 0.1U [M]
C705*5	ECBT1H561KB5	50V 560P [M]
C705*6	ECUZNE104MBN	25V 0.1U [M]
C706*5	ECBT1H561KB5	50V 560P [M]
C706*6	ECUV1H272KBN	50V 2700P [M]
C707*5	ECBT1H561KB5	50V 560P [M]
C707*6	ECUV1E273KBN	25V 0.027U [M]

Ref. No.	Part No.	Values & Remarks
C708*5	ECBT1E103ZF	25V 0.01U [M]
C708*6	ECUE1H472KBN	50V 4700P [M]
C709*5	ECEA0JKA220B	6.3V 22U [M]
C709*6	ECUE1C473KBN	16V 0.047U [M]
C710*5	ECBT1E103ZF	25V 0.01U [M]
C710*6	ECUV1H182KBN	50V 1800P [M]
C711*5	ECEA1CKA100B	16V 10U [M]
C711*6	ECUWNE104ZFN	25V 0.1U [M]
C712*5	ECBT1H561KB5	50V 560P [M]
C712*6	ECUWNE104ZFN	25V 0.1U [M]
C713*5	ECBT1H561KB5	50V 560P [M]
C713*6	ECUV1C104MBM	16V 0.1U [M]
C714*5	ECBT1H561KB5	50V 560P [M]
C714*6	ECEA0JKA101I	6.3V 100U [M]
C715	ECBT1H561KB5	50V 560P [M]
C716*5	ECBT1H101KB5	50V 100P [M]
C716*6	ECUE1H561KBN	50V 560P [M]
C717*5	ECBT1H101KB5	50V 100P [M]
C717*6	ECUWNE104ZFN	25V 0.1U [M]
C718*5	ECEA1HKA010B	50V 1U [M]
C718*6	ECUV1C224KBM	16V 0.22U [M]
C719	ECEA1HKA010B	50V 1U [M]
C720	ECBT1H150JC5	50V 15P [M]
C721*5	ECBT1H180JC5	50V 18P [M]
C721*6	ECUV1H150JCN	50V 15P [M]
C722*5	ECBT1H680J5	50V 68P [M]
C722*6	ECUV1H150JCN	50V 15P [M]
C723*5	ECBT1H560J5	50V 56P [M]
C723*6	ECEA1AKA221I	10V 220U [M]
C724*5	ECBT1H680J5	50V 68P [M]
C724*6	ECUV1C104MBM	16V 0.1U [M]
C725	ECBT1H560J5	50V 56P [M]
C726, 727	ECBT1H102KB5	50V 1000P [M]
C728	ECEA0JU101B	6.3V 100U [M]
C729	ECEA1VU220	35V 22U [M]
C730*5	ECBT1H101KB5	50V 100P [M]
C730*6	ECUWNE104ZFN	25V 0.1U [M]
C731*5	ECBT1H101KB5	50V 100P [M]
C731*6	ECEA0JKA221I	6.3V 220U [M]
C732*5	ECBT1H101KB5	50V 100P [M]
C732*6	ECEA0JKA221I	6.3V 220U [M]
C733*5	ECBT1H101KB5	50V 100P [M]
C733*6	ECUZNE104MBN	25V 0.1U [M]
C734*5	ECBT1H104ZF5	50V 0.1U [M]
C734*6	ECEA1AKA221I	10V 220U [M]
C735*5	ECBT1C103MS5	16V 0.01U [M]
C735*6	ECUWNE104ZFN	25V 0.1U [M]
C736*5	ECBT1H102KB5	50V 1000P [M]
C736*6	ECUWNE104ZFN	25V 0.1U [M]
C737*5	ECBT1H101KB5	50V 100P [M]
C737*6	ECUWNE104ZFN	25V 0.1U [M]
C738*5	ECEA1VU220	35V 22U [M]
C738*6	ECUV1C154KBN	16V 0.15U [M]
C739	ECEA1HKA010B	50V 1U [M]
C740	ECBT1H101KB5	50V 100P [M]
C741	ECBT1E103ZF	25V 0.01U [M]
C742*5	ECEA1HKA0R1B	50V 0.1U [M]
C742*6	ECUV1E273KBN	25V 0.027U [M]
C743*5	ECEA1HKA0R1B	50V 0.1U [M]
C743*6	ECUWNE104ZFN	25V 0.1U [M]
C744*5	ECEA1HKA0R1B	50V 0.1U [M]
C744*6	ECUE1E822KBN	25V 8200P [M]
C745*5	ECEA1HKA0R1B	50V 0.1U [M]
C745*6	ECUE1H102KBN	50V 1000P [M]
C746	ECBT1E103ZF	25V 0.01U [M]
C747	ECUE1H222KBN	50V 2200P [M]
C748	ECUV1H471KBM	50V 470P [M]
C749	ECUZNE104MBN	25V 0.1U [M]
C750	ECUV1C104MBM	16V 0.1U [M]
C751	ECUZNE104MBN	25V 0.1U [M]
C752	ECUE1H152KBN	50V 1500P [M]
C753	ECUV1H471KBM	50V 470P [M]
C840, 841	ECBT1E223ZF	25V 0.022U [M]
C901, 902	ECFR1C473KR	16V 0.047U [M]
C903, 904	ECFT1C104MDY	16V 0.1U [M]
C905	ECBT1H220JC5	50V 22P [M]
C906	ECBT1H220JC5	50V 22P [M]
C907, 908	ECEA1HKA010B	50V 1U [M]
C909	ECEA1CKA101B	16V 100U [M]
C911, 912	ECEA1HKA010B	50V 1U [M]
C913	ECEA1CKA220B	16V 22U [M]
C914	ECEA1CKA100B	16V 10U [M]
C919, 920	ECBT1E103ZF	25V 0.01U [M]
C921, 922	ECFR1C683KR	16V 0.068U [M]
C923, 924	ECFR1C333KR	16V 0.033U [M]
C925-928	ECFR1C563KR	16V 0.056U [M]
C929, 930	ECKR1H562KB5	50V 5600P [M]
C931, 932	ECEA1HKA3R3B	50V 3.3U [M]
C933	ECEA1CKA220B	16V 22U [M]
C934, 935	ECBT1E103ZF	25V 0.01U [M]

■ Replacement Parts List

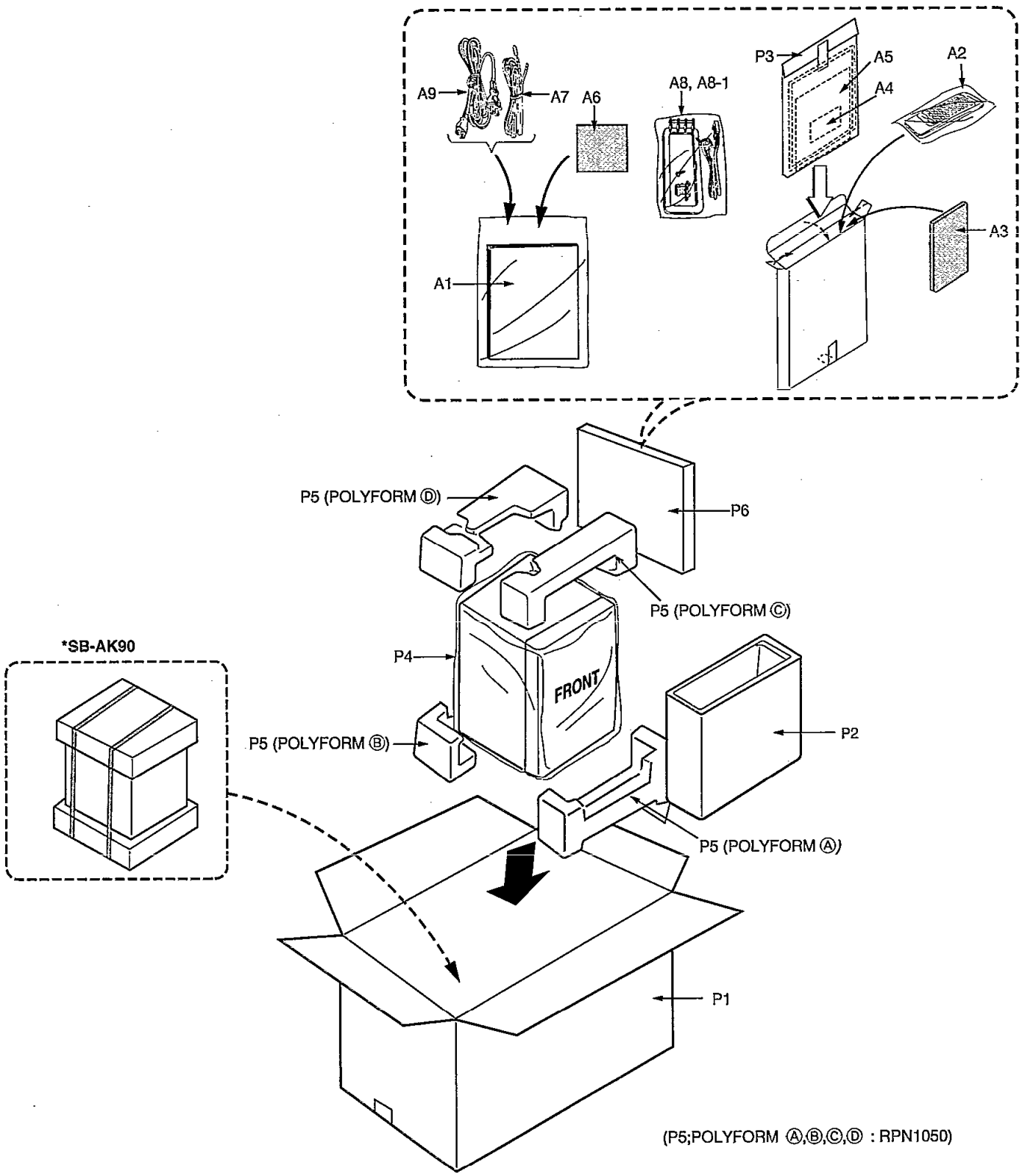
Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* The "(SF)" mark denotes the standard part.
* [M] indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL	
P1	RPG3413	PACKING CASE	[M] (P)
P1	RPG3414	PACKING CASE	[M] (PC)
P2	RPQQ739	PAD	[M]
P3	XZB25X34C03X	PROTECTION BAG (F. B.)	[M]
P4	RPFX0008-2	PROTECTION BAG (UNIT)	[M]
P5	RPN1050	POLYFORM	[M]
P6	SPSD152	ACCESSORY BOX	[M]
		ACCESSORIES	
A1	RQT3884-P	INSTRUCTION MANUAL	[M] <IA>
A1	RQT5950-M	INSTRUCTION MANUAL	[M] <IA> (P)
A1	RQT3885-C	INSTRUCTION MANUAL	[M] <IB> (PC)
A2	EUR644375	REMOTE CONTROL TRANSMITTER	[M]
A2-1		BATTERY COVER FOR R/CTR.	[M]
A3	RFAD860-K	FILE BOOK	[M]
A4	RQAD113	WARRANTY CARD	[M] (P)
A4	SQX7185	WARRANTY CARD	[M] (PC)
A5	RQCB0391	SERVICENTER LIST	[M] (P)
A5	RQCB0792	SERVICENTER LIST	[M] (PC)
A6	RQLA0321	NUMBER SHEET	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
A7	RSA0006-J	FM INDOOR ANTENNA	[M]
A8	RSA0022	AM LOOP ANTENNA SET	[M]
A8-1	RMN0244	AM ANTENNA HOLDER	[M]
A9	SJA172	AC POWER SUPPLY CORD	[M] ⚠ (SF)
		<GREASE OR JIG/TOOL>	
		TEST TAPE	
SA1	QZZCFM	OVERALL ADJUSTMENT CHECK	[M]
SA2	QZZCWAT	TAPE SPEED ADJUSTMENT	[M]
		GRASE	
SA3	RZZ0L01	SCREW LOCKING BOND	[M]
SA4	RFKXPG671	MORYCOAT GREASE PG671	[M]
SA5	RFKX0002	COMPOUND GREASE	[M]
		EXTENTION	
SA6	RFKZ0062	EXTENTION CORD	[M]
		TEST DISC	
SA7	SZZP1054C	PLAYABILITY TEST DISC	[M]
SA8	SZZP1056C	UNEVEN TEST DISC	[M]

Notes: ● "<IA> ,<IB>" marks in Remarks indicate language of instruction manual.
[<IA>: English, <IB>: English/French]

■ Packaging



(P5;POLYFORM Ⓐ,Ⓑ,Ⓒ,Ⓓ : RPN1050)

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